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CONTENTS—JULY 1958—VOLUME 34, NUMBER 7

DIET AND ATHEROSCLEROTIC DISEASE. I. Recent Pathologic and Clinical Findings
Jeremiah Stamler, M.D. 701

A DIETARY STUDY IN HAITI
Faye W. Grant, Ph.D., *and Dale Groom*, M.D. 708

SODIUM IN FOODS FOR A 100-MG. SODIUM DIET. Analyzed vs. Calculated Values
Lewis K. Dahl, M.D., *Lorraine M. Tassinari, and Norma Gillespie* 719

AMINO ACID COMPOSITION OF BREAD PROTEINS
Richard J. Block, Ph.D., *and Richard H. Mandl* 724

WHAT DOES TOP MANAGEMENT EXPECT?
George E. Cartmill 727

DO YOU IRRITATE OTHERS WHEN YOU LISTEN?
A. Conrad Posz, Ph.D. 730

PLATE WASTE IN A SCHOOL LUNCH. II. Sources of Waste
Mary Brown Patton, Ph.D., *Alice Forsythe Carver, and Fern Ensminger Hunt* 733

QUALITY OF FOOD BOUGHT BY URBAN FAMILIES
Louise Kelley, Ph.D., *Margaret A. Ohlson*, Ph.D., *Gerald G. Quackenbush, and Felicitas F. Piedad* 738

READINGS ON COMMUNICATIONS 744

BOOK REVIEWS 745

FOOD AND LABOR COSTS 746

LETTERS TO THE EDITOR 747

CURRENT LITERATURE 748

ABOUT YOUR ANNUAL MEETING—OCTOBER 21-24 769

NEWS NOTES 770

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I. Recent Pathologic and Clinical Findings

Diet and Atherosclerotic Disease[1]

JEREMIAH STAMLER, M.D. [2,3]

Cardiovascular Department,
Medical Research Institute,
Michael Reese Hospital,
Chicago

Atherosclerotic disease is one of the prime public health problems of concern to those in the field of applied nutrition. How much can be said? The prodigious amount of research being done will be reviewed by Dr. Stamler in a progress report covering three areas: pathologic and clinical findings, animal experimentation, and epidemiologic studies. The last two topics will appear in four subsequent papers in this Journal.

THE PROBLEM discussed in this series of five papers, namely, atherosclerosis and atherosclerotic disease, is being intensively investigated at present. A review—by no means all-encompassing—of the recent literature on this subject revealed over 750 references appearing in the five-year period between 1953 and 1957 (1). This is as it should be, since atherosclerotic disease is the prime public health problem in the United States today (Fig. 1) (1, 2)[4], as well as a major challenge to contemporary science. This graph indicates that cardiovascular-renal disease in general, and atherosclerotic heart disease in particular, are major producers of mortality in the forty-five- to fifty-four-year-old white males, being responsible for approximately half and a third of all deaths respectively. Note the sex differential in mortality rates, especially between white men and women; compare the less marked sex differential among Negroes. Note also that arteriosclerotic and degenerative heart disease and arteriosclerotic heart disease rates are somewhat lower in Negro than white men, whereas they are considerably higher in Negro than white women. These data afford an insight into the dimensions of the atherosclerosis problem among the middle-aged in the United States today. They are also indicative of key epidemiologic patterns of this disease process.

In any evaluation of this prodigious research activity on atherosclerosis, one central conclusion emerges: ". . . a strong case is developing to suggest that the nutritional status of an individual is an important environmental factor in the etiology of this disorder" (6). This progress report seeks to evaluate the evidence leading to this conclusion. It also attempts to arrive at an integrated concept concerning the relationship between nutrition and other factors in the causation of morphologic atherosclerosis and clinical atherosclerotic disease.

The evidence has been amassed in studies utilizing the three main methods available to research—pathologic and clinical approaches, animal experimentation, and epidemiologic studies.

[1] Based on talks given before the Chicago Nutrition Association on May 29, 1957, and at the 40th Annual Meeting of The American Dietetic Association in Miami, on October 22, 1957.

[2] Established Investigator of the American Heart Association, 1952-58. As of April 1, 1958, Director, Heart Disease Control Program, Chicago Board of Health.

[3] The studies on animal experimental and clinical atherosclerosis in the Cardiovascular Department were conducted in collaboration with Dr. Louis N. Katz, Director, and Dr. Ruth Pick, Research Associate. An indispensable contribution has been made by the Department's experimental atherosclerosis research team and epidemiologic research units: Dolores Friedman, Yolanda F. Hall, Philip Johnson, Marcus Kjelsberg, Wilda Miller, Grady Crowley, Chizuko Kakita, Eva W. Miller, Mildred Michael, Charlene Thompson, Montez Vankinscott. These investigations, as well as the studies on the epidemiology of atherosclerotic disease, were supported by research grants from the Chicago Heart Association and the National Heart Institute, U.S. Public Health Service (H2276 and H2984). The epidemiologic analyses of the Chicago, Illinois, and United States mortality data were made possible by the cooperation of Dr. Herman N. Bundesen, President, Chicago Board of Health; Dr. O. K. Sagen, Office of Vital Statistics, Illinois Department of Health, Springfield; and Dr. Iwao Moriyama, National Office of Vital Statistics, U.S. Public Health Service, Washington, D. C. Appreciation is also gratefully expressed to colleagues and publishers who granted permission to reproduce data and figures from reports in print, and to Wesley Sharer, Mary Hortatsos, and the staff of Wesley Sharer and Associates for preparing the graphs.

[4] Since extensive bibliographies accompany other recent reviews (1, 2, 4, 5), no attempt is made here at comprehensive documentation with references. The bibliography includes only those papers from which data are cited in the text.

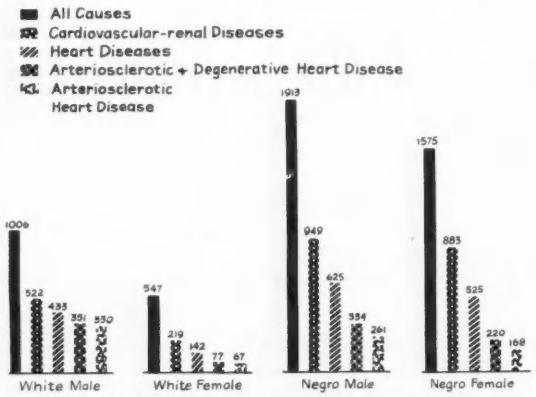

FIG. 1. *Death rates due to atherosclerotic disease in the United States in 1950 in the age bracket, forty-five to fifty-four years* (2, 3). *Numbers above the columns indicate the death rate per 100,000 population.*

Pathologic and Clinical Research

Clinico-pathologic investigation pioneered as far back as a hundred years ago (4). This methodology contributed the initial formulation of the problem.

In the middle of the last century, cellular pathologists identified atherosclerosis as a separate, specific lesion among the generic grouping of the arterioscleroses (4). Atherosclerosis is distinguishable particularly by its striking content of cholesterol and other lipids in the arterial wall. Subsequently, the intimal foam cell cushion, made up of one or more layers of cholesterol-lipid-laden cells, was identified as the earliest histologically recognizable stage of plaque formation in human arteries. In experimental animals and probably in man, plaque formation is preceded by lipid deposition in the intima without apparent alteration in number and arrangement of intimal cells (4). These observations by pathologists brought to the fore—but could not answer—the critical question: Is there any etiologically significant interrelationship between cholesterol-fat in the diet, the plasma, and the lesion?

ATHEROSCLEROSIS—A SYSTEMIC METABOLIC DISEASE

Further investigations demonstrated that the lipids in atherosclerotic plaques closely resemble the plasma lipids in composition. Recently these findings have been extended with the demonstration that plaques contain all the fatty acids—saturated, monounsaturated, and polyunsaturated—present in plasma. These observations serve to clarify one aspect of the problem. That is, they indicate that the plaque lipids are derived chiefly from plasma, probably by infiltration across the inner cell walls. Atherosclerosis, therefore, would seem to be a systemic metabolic disease, i.e., a disease basically related to cholesterol-lipid-lipoprotein metabolism of the whole organism.

Other pathologic studies, old and new, have shown that the atherosclerotic process begins to develop in infancy and early childhood. In countries like the United States, at least, it tends to increase progressively with age. Although correlating with age, however, atherosclerosis is not an aspect of physiologic senescence. Rather, it is a disease, separate and distinct from the aging process. Extensive data support this concept, including the fact that some young people—particularly in economically more developed countries like the United States—may have severe atherosclerosis, although their tissues are obviously not senescent. Contrariwise, some very old people—particularly in the economically less developed countries of Africa, Asia, and Latin America—may have remarkably little atherosclerosis, although their tissues are patently senescent. The evidence indicating that habitual diet is an important—but not exclusive—factor influencing the rate of progression of this life-span process of atherogenesis is presented in the subsequent paper on epidemiologic research.

Other recent pathologic investigations indicate that there is a general parallelism—but not identity—in extent and degree of atherosclerosis in the major arteries, e.g., coronary, carotid, cerebral, renal, iliac, and aorta. That is, when lesions are severe in the coronary arteries, for example, they tend to be relatively severe in other major arterial beds. This conclusion does not deny the fact that different vessels exhibit different degrees of development of disease. It merely takes note of a general parallelism. It should be further noted that conflicting evidence is available concerning presence or absence of such parallelism in the aorta and coronary arteries of women. There is also considerable evidence demonstrating a lack of parallelism between severity of atherosclerosis in major visceral arteries and severity of other types of arteriosclerosis, e.g., Mönckeberg's media calcinosis of peripheral arteries, such as the radials. These findings support the concept that this disease has a systemic metabolic basis, irrespective of particular local factors in individual arterial beds.

Pathologic investigations have further shown that atherosclerosis is less marked in persons dying of chronic debilitating diseases, e.g., malignant neoplasms, than in persons of the same age and sex dying acutely. These findings suggest that severity of atherosclerosis may be related to nutritional status. In addition, they lend support to the important concept that the organism is capable—at least to a degree, under certain nutritional-metabolic circumstances — of effecting regression of atherosclerotic lesions.

Extensive evidence has also been accumulated by both pathologic and clinical research indicating that morphologic atherosclerosis is more extensive

and severe in men than women, in persons with hypertension than without, in those with diabetes than in those without, in hypothyroid than in euthyroid persons, in those with nephrosis than in those with normal kidneys, and in persons with xanthomatosis than in those free of this familial derangement of cholesterol-lipid metabolism. (These relationships do not necessarily prevail in the economically less developed countries.)

Clinical research has brought out further correlations. In several of the foregoing diseases, one common feature is a prolonged period of more or less marked hypercholesterolemia. This association lends further support to the concept that atherosclerosis is a metabolic disease. It should be recognized, however, that in these diseases, hypercholesterolemia is chiefly endogenous in origin, that is, largely unrelated to diet. Hence, it must be concluded that under rare circumstances, a metabolic derangement leading to intensified atherogenesis may occur without diet playing an important role.

The findings concerning the relationship between severity of atherosclerosis and sex, diabetes, and hypothyroidism also alerted workers to the likely possibility that hormonal function influenced atherogenesis. It poses in another form the problem of the interplay between diet and the endocrines in the pathogenesis of this disease.

ATHEROSCLEROSIS AND ITS COMPLICATIONS

Pathologic research has also demonstrated that morphologic atherosclerosis often occurs without clinical expression of the morbid process. The transition from subclinical to clinical disease often is the result of complications of atherosclerosis, including hemorrhage into plaques and thrombus formation on the surface of plaques, with consequent vessel closure and tissue infarction, leading to clinical symptoms and signs of organic disease.

These pathologic observations pose the problem of factors in the causation and pathogenesis of the complications of atherosclerosis, as distinct from atherosclerosis *per se*. Considerable attention has been focused recently on the possible influence of nutrition, particularly dietary fat ingestion, on blood clotting and thrombosis.

CORONARY ATHEROSCLEROSIS AND CLINICAL CORONARY HEART DISEASE

Throughout this series of papers, particular attention is given to the problem of atherosclerosis and atherosclerotic disease in the coronary arteries. The focus has a twofold basis: first, the bulk of the available data deals with coronary atherosclerosis. Information is limited on atherosclerosis in other arterial beds. Second, the correlation between coronary atherosclerosis and clinical coronary heart disease is of a very high order. At least 90 per cent of all patients with coronary disease have atherosclerosis as the underlying pathologic process. Therefore, data on the occurrence of clinical coronary disease closely reflect the occurrence of morphologic atherosclerosis of severe degree in a population.

This correlation does not necessarily hold to a high degree for disease at other sites. With clinical cerebrovascular disease ("strokes"), for example, it is difficult to differentiate among cerebral embolism, hemorrhage, and thrombosis. These are processes having different etiopathologic bases. Thus, recent pathologic studies indicate that cerebral hemorrhage in persons with hypertension may be a complication—not chiefly of atherosclerosis (as has been widely believed) but of a hypertensive miliary aneurysmal lesion in the smaller cerebral vessels. Unlike coronary disease, therefore, it is probably not correct to assume that prevalence and incidence rates for cerebrovascular disease reflect the occurrence of severe cerebral atherosclerosis in a given population. This invalid assumption has tended to obscure understanding concerning epidemiologic trends. For valid comparisons, cerebral thrombosis (usually atherosclerotic in its pathologic basis) must be separated from the heterogeneous cerebrovascular disease grouping.

MORPHOLOGIC ATHEROSCLEROSIS AND CLINICAL ATHEROSCLEROTIC DISEASE

Several careful pathologic studies clearly demonstrate that groups of people manifesting signs and

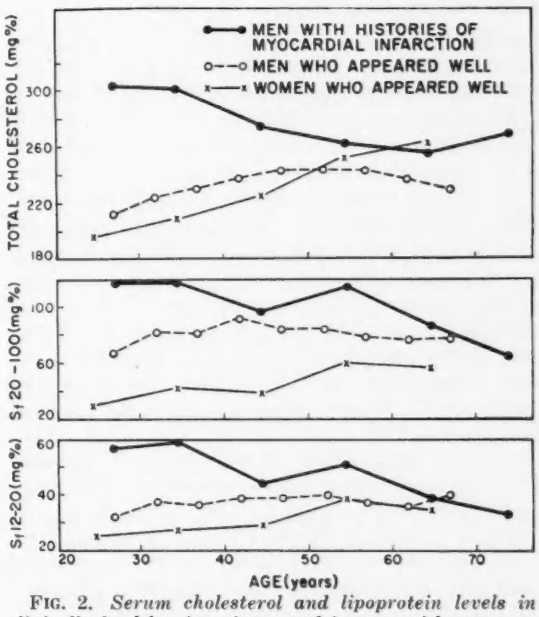

FIG. 2. *Serum cholesterol and lipoprotein levels in clinically healthy Americans and in men with coronary heart disease* (7).

symptoms of atherosclerotic disease, e.g., coronary heart disease, have more severe morphologic atherosclerosis than groups free of clinical disease. This is a vitally important finding, since it indicates that development of clinical disease is significantly related to severity of atherosclerosis.

It may be inferred further that the development of complications of atherosclerosis—frequently the precipitants of clinical disease—is at least in part a function of severity of atherosclerosis.

This correlation is also highly important for clinical investigation. It constitutes the basic pathologic evidence on which rests all clinical research on this disease. Thus, when cholesterol-lipid-lipoprotein metabolism is analyzed in clinically normal vs. clinically diseased groups of subjects, the assumption is implicit that a comparison is being made of groups with less vs. more atherosclerosis. The pathologic evidence demonstrating the soundness of this assumption is the essential foundation stone validating the whole approach of clinical investigation.

Ideally, such comparisons should involve groups with and without atherosclerosis. Unfortunately, in countries like the United States, such "pure" comparisons are practically impossible, since most adults manifest some atherosclerosis. For such "pure" comparisons, North Americans with clinical atherosclerotic disease must be compared with age-sex-matched groups drawn from the clinically healthy populations of the economically less developed countries.

Clinical Research

Based on the foregoing approach, clinical research has made another critically important contribution. It has conclusively demonstrated that any group of middle-aged men with coronary heart disease has significantly higher levels of circulating cholesterol, lipids, and beta-lipoproteins than a comparable clinically normal group (Fig. 2) (7). Also, the differences between the clinically normal and coronary disease groups are greater, the younger the two groups. It should be emphasized that these observations refer to *group* differences. Within any group of middle-aged men with coronary heart disease, a small percentage will invariably exhibit low plasma cholesterol levels. It is of key theoretical importance that this percentage is *low*. These "exceptions to the rule" certainly merit intensive study, since elucidation of the etiology and pathogenesis of the disease in these individuals should contribute significantly to clarifying the over-all problem.

It is also noted in Figure 2 that, as a group, clinically well women have lower serum cholesterol levels than clinically well men throughout the age-range of twenty-five to forty-five years. The possible relationship of this finding to the sex differential in coronary heart disease has been discussed by several authors (1, 2, 4, 5, 8).

These comparisons—or, more precisely, contrasts—bring to the fore several critical questions: What are proper standards for normal—and optimal—serum cholesterol? Why do extensive segments of the clinically normal, healthy middle-aged American population have serum cholesterol-lipid-lipoprotein levels in a range inordinately predisposing them to coronary heart disease? What is the origin of this apparent lipid metabolic derangement? Is habitual diet a decisive causative factor—and, if so, what in the diet? The aforementioned studies do not attempt to answer these questions.

DIET AND SERUM CHOLESTEROL-LIPID-LIPOPROTEIN

Recent clinical investigations have yielded important new data partially clarifying these problems. They have conclusively demonstrated that serum cholesterol-lipid-lipoprotein levels of middle-aged Americans are highly amenable to alteration by dietary means. These findings are characterized as *partially* clarifying the over-all problem, since they deal explicitly with the interrelation between diet and serum lipids, and only by implication with atherogenesis.

Simple overeating with rapid weight gain was shown to be associated with an increase in serum cholesterol. Further, increased intake of saturated fats in an isocaloric diet also correlated with a rise in serum cholesterol. These data from human experiments support the concept—indicated by epidemiologic findings—that diets high in total calories, total fats, saturated fats, and cholesterol lead to high serum cholesterol levels.

Several clinical studies have also indicated that ingestion of a high-fat meal is followed postprandially by a decreased fibrinolytic capacity of the

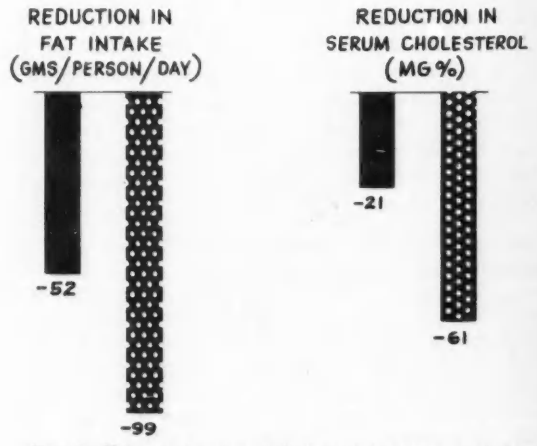

FIG. 3. *Effects of reduced dietary fat on serum cholesterol in men on a diet constant in calories, protein, minerals, and vitamins* (9).

blood and by an increased blood coagulability *in vitro*. Clotting time is apparently decreased, irrespective of the type of fat, i.e., animal or vegetable, saturated or unsaturated. It is not altered by low-fat meals. No data are available concerning the *in vivo* effects of fat vs. non-fat meals on the clotting mechanism. These observations posed a question beyond that concerning the possible relationship between dietary lipids and atherogenesis: Do high-fat diets contribute to *in vivo* thrombogenesis, i.e., do they play a role in the development of coronary and cerebral thrombosis, complicating atherosclerosis, with resultant infarction of heart and brain? This question is as yet entirely unanswered.

Clinical investigations have also demonstrated that serum cholesterol concentration may be readily lowered by dietary means. It tends to fall during weight reduction. Low-fat, low-cholesterol diets also effect such a decline in most patients (Fig. 3) (9), with the decline being proportional to the reduction in fat intake. The fall in serum cholesterol is often substantial, particularly in hypercholesterolemic patients. It apparently persists in most persons with continued adherence to the low-fat, low-cholesterol diet.

DIETARY TREATMENT OF ATHEROSCLEROTIC DISEASE

As a result of such findings, three long-term evaluations were initiated several years ago on the possible efficacy of low-fat, low-cholesterol diets in the treatment of patients with clinical coronary heart disease (1, 5). Such studies—in contrast to investigations of effects of dietary regimens on serum cholesterol-lipids-lipoproteins—are necessarily years-long in their accomplishment, since the only reliable criterion is effect on survival. Large groups of patients are needed; problems of proper control are manifold (1, 5, 8). It is, therefore, not surprising that studies of this type are rare.

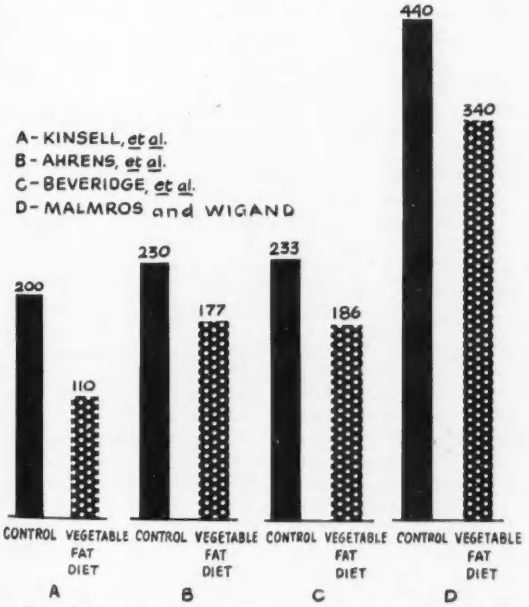

FIG. 4. *Decrease in serum cholesterol following substitution of vegetable for animal fat in "American-type" diets as reported by four groups of investigators* (10-13).

In the first of these, two groups of patients were followed for eight years. A low-fat, low-cholesterol diet (1600 calories, 20 to 25 gm. fat, 50 to 70 mg. cholesterol, 225 gm. carbohydrate, and 120 gm. protein, plus supplemental nutrients—brewer's yeast and whole wheat germ) was prescribed for fifty subjects. The other fifty—the control group—continued to ingest their habitual diets. The treated group experienced a significant weight loss, occurring during the initial three years; thereafter, weight remained stable. Serum total lipids, cholesterol, and neutral fats declined markedly. Survival rates appeared to be significantly better in the treated group.

The other two reports presented similar positive results. In each study, however—as evaluated from the published reports—certain problems appear to exist concerning the experimental design, particularly the adequacy of precautions for fully controlling the study. Nevertheless, the data of these three investigations indicate that low-fat, low-cholesterol diets may be effective in treating clinical coronary heart disease. Additional work along these lines would seem to be in order. It is noteworthy, for example, that no information is available concerning the prophylactic utility of such dietary regimens in people with a high risk of coronary disease who have not yet experienced a clinical episode.

UNSATURATED FATS AND SERUM CHOLESTEROL

Another recent clinical research development is the demonstration that serum cholesterol levels fall significantly when unsaturated vegetable or marine oils are substituted for saturated fats in the diet (Fig. 4) (10-13). The first clinical investigations along these lines were of the *complete* substitution type. They involved the use of formula diets containing 40 to 60 per cent of the calories from oils, with the exclusion of all animal fats from the ration. In all such studies, the decrease in serum cholesterol was consistently observed. In the last year or two, additional data have been presented indicating that mixed vegetarian diets, devoid of animal or other saturated fats, are also effective in reducing cholesterolemia.

Further, a few *partial* substitution experiments have also reported positive results. These utilized a mixture of food fats, with about 65 to 75 per cent of the fat calories coming from unsaturated vegetable or marine oils and 25 to 35 per cent from saturated animal fats.

Another variation in experimental design has also been explored, that is, *supplementation* of an unaltered high-calorie, high-fat, high-saturated fat, high-cholesterol diet with unsaturated oils. This approach involves neither withdrawal of fat nor any other departure from the customary fare. Until recently, only limited contradictory data on a few patients had been presented on the effects of such a regimen. At the October 1957 meeting of the American Heart Association, however, impressive findings were reported, indicating that daily ingestion of 30 cc. of a mixture of polyunsaturated essential fatty acids (49 per cent linoleic acid, 49 per cent linolenic acid, 2 per cent arachidonic acid) effected a significant correction of hypercholesterolemia in subjects without dietary alteration. Additional work is needed before any definite evaluation is possible of the effects of unsaturated oil *supplementation*—a conclusion in no way invalidating the impressive positive results obtained in substitution and some supplementation experiments.

Extensive studies are in progress on the mechanism of the decline in cholesterolemia occurring with substitution of unsaturated vegetable-marine oils for saturated animal fats. Among the possible factors under investigation are: removal of cholesterol from the diets; absence of hypercholesterolemia-inducing saturated fats; high intake of phospholipids, plant sterols, unsaturated fats, essential fatty acids; effects on gastro-intestinal tract function vis-a-vis cholesterol metabolism. The definitive solution of this problem of mechanism remains to be accomplished.

ATHEROSCLEROSIS—A RESULTANT DEFICIENCY OF ESSENTIAL FATTY ACIDS?

Speculation has been particularly rife on the possible role of essential fatty acids in the cholesterolemia-reducing effect of vegetable-marine oils. It has been suggested that atherosclerosis is a disease of essential-fatty-acid deficiency. This speculative hypothesis cannot be definitely evaluated at present, in view of the paucity of relevant data. In contradiction to this concept, a recent study found normal levels of essential fatty acids in the sera of patients with coronary heart disease. Further, as already noted, analyses of atherosclerotic plaques reveal that they contain all the lipids present in plasma, including the polyunsaturated essential fatty acids. These findings militate against the hypothesis that atherosclerosis is a disease due to a deficiency of essential fatty acids.

In this connection it is important to note that usual American diets are not low in essential fatty acids—quite the contrary. Butter, margarine, and other hydrogenated vegetable fats contain 2 to 10 per cent essential fatty acids. Milk and milk products have a significant content of essential fatty acids. Animal fats in general are composed of about 9 per cent essential fatty acids. Most Americans, therefore, ingest large amounts of essential fatty acids every day, irrespective of their vegetable-marine oil intakes (which often are also sizable). They actually consume much more essential fatty acid than most other peoples.

Therefore, even if a metabolic deficiency of essential fatty acids were actually present in the American population (there are no data indicating this), it could not be due to a primary dietary lack of essential fatty acids. It could only be a *relative* deficiency, *secondary* perhaps to excessive intake of saturated fats, cholesterol, refined carbohydrates, and/or total calories. This would be a derivative imbalance, with inadequacy due to an inordinate need stemming from other dietary aberrations and excesses.

Undoubtedly future research will effectively clarify this group of problems concerning the unsaturated oils and essential fatty acids. Irrespective of the ultimate resolution of these questions of mechanism, the demonstration of an effect of dietary unsaturated oils on serum cholesterol levels represents one of the important advances of recent years.

In summary, then, the recent findings of clinical research have amply demonstrated a close relationship between level of cholesterolemia and development of atherosclerotic disease on the one hand, and between the dietary pattern and level of cholesterolemia on the other.

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BIOGRAPHICAL NOTES FROM THE HISTORY OF NUTRITION

Thomas Phaer—1510 (?)–August 12, 1560

The first book on pediatrics written by an Englishman—and one of the earliest medical books printed in the English language—was published in 1545. The title was *The Boke of Chyldren* and in the preface the author wrote: "But my purpose is here to doo theym good that have moste neede, that is to saye, children." In 1955 an exact reproduction of the 1553 edition of the book was published. The book is small—5 by 7½ in.—and has 76 pages. In the text, the same word may be spelled in two different ways on the same page. The author, Thomas Phaer, also seemed to like variety in the spelling of his name and it has appeared as Phaire, Phayre, Faer, Phaier, and Phayer. His small treatise covered briefly many children's diseases, including: "Remedy for scalles"; "Remedy for wartes or knobbes of the head"; "Terrible Dreams and Feare in the Slepe"; "Stifnes or Starckenes of Limmes"; "Watrying eyes"; "Scabbynesse and Ytche"; and "Cough." Under "Remedies appropriate to the encreasing of milk in the brestes," the following advice is given: "Pasneppe rootes, and fenelle rootes, sodden in broth of chickens, and afterwards eaten with a little freshe butter, maketh encrease of milke within the brestes."

Comparatively little is known about this early pediatrician. He was born about 1510, possibly in Norwich, England, the son of Thomas Phaer, who was of Flemish origin. He went to Oxford, and then to Lincoln's Inn, London, to study law. It is not known when or where he studied medicine, but he applied to Oxford in 1558 for a bachelor of medicine degree and stated that he had practiced medicine for twenty years; he received the degree of Doctor of Medicine the same year.

Phaer must have practiced law as well as medicine, because he wrote two legal handbooks, was solicitor in the Court of Welsh Marches, and a member of Parliament for Cardigan, Wales, for several years. He was well educated, and in 1544 published *The Regiment of Life*, a translation from the French which went through several editions, and in 1555 a translation of Virgil's *Aenid* which brought him some fame.

A Boke of Chyldren is believed to have been translated from the French, and at best it was only a compilation from the writings of others; there was nothing original in it, but it was a good compilation of all that was known at the time. Phaer claimed that in this book he first made medical science intelligible to Englishmen in their own language.

There was nothing new or original in his work, but he was a public spirited man and he made known what there was to know in his day about the care and treatment of children. He did this not in the customary Latin, but in plain English and he made it real and practical.

Phaer had a wife, Ann, and three daughters, Eleanor, Mary, and Elizabeth. He lived at Kilgerran in Pembrokeshire, Wales, and died there on August 12, 1560. He was buried in the parish church.

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A Dietary Study in Haiti[1]

FAYE W. GRANT, Ph.D.,[2] **and DALE GROOM, M.D.**[3]

Medical College of South Carolina, Charleston

THE DIETARY study reported here was carried out in Haiti during the summer of 1956, for the purpose of obtaining general and quantitative information on the diet and living conditions of the Haitian people, particularly those of Port-au-Prince, the capital, and the rural areas surrounding it. This is one aspect of an over-all study concerned with the incidence of atherosclerosis in the Negroes of Haiti as compared with those in Charleston, South Carolina (1).

Although the Haitian diet is considered poor in relation to accepted standards of adequacy, little was available concerning meal patterns and quantitative aspects of the diet. Food supply and production have been considered by the United Nations Mission to Haiti (2), and recommendations of this mission have led to some improvement in food production. Various departments of the Haitian government likewise have investigated food supply and production, as well as the over-all nature of the diet.

Boulos (3) has reported on the nutritive value of the average diet of sixty families similar to those considered in this study. He also has discussed the nutritive requirements of pregnancy (4). Cesar (5), using the money spent per day and the traditional eating pattern as a basis for estimates, calculated the probable food intake of 200 women attending a maternity clinic. The evolution of the diet of the lower class Haitian, which is at or near starvation levels during certain seasons, has been treated in detail by Duvalier (6). The diet has been reported to consist principally of root vegetables, cereals, and other foods of vegetable origin. Boulos (3) noted a marked appetite for fat among some families.

Studies of other population groups suggest that a causative relation may exist between diet and certain conditions giving rise to atherosclerosis. The work of Keys and associates (7-10) in Africa, Spain, Italy, Japan, and the United States indicates that the amount of dietary fat is of particular importance where plasma cholesterol is concerned. The nature of the dietary fat also has been implicated as a factor affecting the level of plasma cholesterol (11-14). Other dietary factors also have been implicated, among them calories, dietary cholesterol, and the kind and amount of protein. Each of these might be expected to differ somewhat in the Haitian diet from levels in the diet of Negroes in South Carolina.

Mann and Stare (15) and others have emphasized the paucity of information available concerning the interrelations of dietaries and the occurrence of atherosclerosis. To derive any correlations, three types of observations have been specified by Mann and Stare (15): the nature of the regular diet, with particular consideration of the daily caloric and fat intake; the level of serum lipids, with attention to the beta-lipoprotein and total cholesterol; and the extent of atherosclerosis as determined by direct observation of tissues from subjects of diverse ages. In the present dietary study and that carried out in South Carolina (16), the first of these observations has been made on segments of two populations. In the investigation of Groom and associates (1), the last of these observations has been carried out. Segments of the populations were selected to be as nearly representative as possible.

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[2]On leave of absence from the School of Nursing, St. Francis Hospital and Loyola University, Evanston, Illinois, during the period in Haiti.

[3]The authors wish to acknowledge the assistance of the Haitian Division of Public Health and College of Medicine, and to thank in particular: Dr. Athemas Bellerive, Director General of Public Health; Dr. Vergniaud Péan and Dr. Edith Hudicourt, both of the Department of Pathology, College of Medicine; Dr. St. Victor, Director, Sanitary Department of Public Services; Dr. Carlos Boulos, Head, Centre d'Hygiene de La Saline; and Dr. Carmontel Cesar, Head, Centre d'Hygiene, Portal Leogane. They also wish to thank: Dr. Melville J. Herskovits, Department of Anthropology, Northwestern University, Evanston, Illinois, and Dr. Louis Mars, Director Instué d'Ethnology, Haiti, for advice and help, as well as Lucienne Gemeau, Food and Agriculture Organization, and Albert J. P. Le Bel, United Nations representative in Haiti. They acknowledge with gratitude the assistance of Joel Kenter, Port-au-Prince, whose personal cooperation throughout comprised a major contribution to this research.

The Country

Haiti, "the Negro republic," comprises the western third of the island of Hispaniola in the West Indies. Lying between 18 and 20 degrees north of the equator and in the sweep of the trade winds, the climate is predominantly tropical. Temperature and rainfall vary widely with topography, as does food production. More than three-fourths of the country's 10,700 sq. mi. is mountainous, with only two-thirds considered tillable. This is scant in view of the population of approximately 3 million.

Cultivation is largely done with hand tools, and food production is meager. Distribution of food may also be poor, as there are few roads. Most produce is transported to market in head baskets, and in some sections, even this transportation becomes totally impossible at times because of severe storms.

Two distinct classes of population in Haiti are described by Leyburn (17) : the vast peasant population of African descent, most of whom are illiterate, and a minority educated class, whose language is French. Many of the latter, however, speak fluent English. The popular language is Creole, based mainly on French. It has been more than 150 years since any significant number of Africans has reached the country. Racially, the peasant population probably has changed no more than has the Negro population in southern United States.

The capital, Port-au-Prince, provides a socio-economic environment that differs somewhat from the country as a whole. Work opportunities are greater, and a semblance of a middle class does exist, with earnings decreasing more gradually to the lowest socio-economic level. Even so, there is poverty, and many do not have full-time employment. Families living on the outskirts of the city fare somewhat better than city dwellers, as they often augment incomes from farming by urban employment. Despite poor methods of cultivation, peasant women usually have a variety of foods to bring into the city daily.

Although Hibbert (18), of the Haitian Department of Statistics, feels it is difficult to classify families in fixed categories, three or four economic levels can be recognized among the lower class: (a) the indigents and those who work only occasionally; (b) the more or less steadily employed factory workers; (c) the skilled workers, such as masons and carpenters; and (d) taxi drivers, who are at the top. In the first three levels, there are also privately employed tailors, sandal makers, wood workers, and vendors. In 1946, the legal minimum wage was set at 3½ gourdes (70 cents) a day, but not all receive this.

Living conditions reflect the low economic status of the greater part of the population. Many families live in flimsy structures made of odd bits of lumber and discarded boxes. Partitions between rooms are incomplete, often reaching only about three-fourths of the distance to the ceiling. Toilet facilities for such families consist of public latrines and water hydrants placed at intervals along the narrow dirt paths. Cooking and laundry work is largely carried on outdoors. Monthly rents range from about 10 to 20 gourdes ($2 to $4). Eleven of the families in this study owned their own houses, but ownership did not include the land, for which annual rent ranged from 10 to 100 gourdes.

Despite the lack of conveniences, these people appear to wear clean clothing daily, their living quarters are orderly, and most seem to be happy. The solidarity among these poorer families is noteworthy also, particularly as it affects their nutrition. Boulos (3) described them as living more or less as one family, noting that those without food often are saved from hunger by donations from neighbors. Evidence of this generosity was found in the frequent visitors at meals, even in the poorest families.

Scope of the Study and Methods

It was necessary first to obtain general information concerning the diet, food supply, and living conditions. Rural and urban markets were visited and eating stands observed. Miscellaneous homemakers were interviewed, food preparation was observed, and some weights and measures of ingredients were taken. Home economists contributed information and provided opportunity to observe a project in homemaking for girls in a rural village. Physicians, nurses, and agronomists summarized their observations for us and answered many questions. The food intake of the previous day of women attending a maternity clinic was obtained by questionnaire.

Through miscellaneous interviews in homes, market place, and clinic, information considered general and supplementary was obtained from forty-one persons or families. Such dietary information was for one day only, except for six families who provided data on their average weekly dietaries. Additional observations were made of food served in the government's Hospitale Generale. This group will be termed the "miscellaneous rural and urban people."

The bulk of the quantitative information was obtained from study of seventy families in the vicinity of the Centre d'Hygiene de La Saline, a public health center in Port-au-Prince. These families, whom we will call simply the "La Saline families," were chosen at random with the help of five visiting nurses. The method was a modification of that used by Boulos (3) in his survey of similar families.

The fact that meal patterns and food preparation were similar among these families gives some justification to the size of the sample. As Norris has pointed out (19), if members of a group are in many respects alike, thirty or fifty families may suffice for a representative sample. Trulson (20) has shown

that the less variation within a sample, the more stable are the mean intakes of various nutrients; also that the length of the dietary study may be governed to some extent by the nutrient studied. In Haiti, our preliminary investigation suggested that at a given economic level, the mean intakes of protein, carbohydrate, and fat probably would vary no more in seven days than in three.

Each nurse visited ten families twice a day for three days and two of the poorest families twice each day for two days. Food purchases for breakfast and for the second meal were obtained during the morning visit, while those for a third meal—when served—were recorded during the afternoon visit or the following morning. The order of the visits was changed so that different phases of food preparation or service could be observed. Grant divided her time between visits in the homes and interviews with the nurses concerning the data collected.

The foods observed or reported were recorded in terms of costs or measures, as indicated by the women. Later the foods were purchased in duplicate or triplicate from stands in the local market, using the recorded costs or measures as the bases for the purchases. The nurses did this buying, the authors remaining well in the background so that prices would not be affected. Subsequently, the foods were weighed and refuse determined. Using these data, the foods recorded for the families were translated into raw edible weights.

As Boulos explained (3), there are several reasons why this method is particularly suitable: food usually is purchased by the meal; women have a good concept of measure and costs; they recall readily the amounts spent for items not customarily weighed; and the houses are close together, which facilitates observations and makes it possible for one interviewer to handle several families at a time. The method is also favored by the practice in the market of using small or large tins *(mamites)* as measures. Many foods, too, are arranged for sale in uniform piles, the weights of which were surprisingly constant at a given price.

Economic status of the family and the average amount spent per day on food were the bases for dividing the families into three groups: Class I, the indigents and those with the lowest earnings; Class II, those with slightly higher incomes; and Class III, those at the highest economic levels. These classes correspond insofar as could be determined to the categories used by Groom (1). It should be borne in mind, however, that all three classes belong to the lowest economic level of the country.

In arriving at the costs per adult per day, children over six years old were included as adults. The food consumed by younger children was estimated on the basis of interrogation or observation, and total food for the adults was corrected on the basis of the estimate. Visitors were considered as members of the family in the distribution of food at meals. When food was eaten outside the home, the raw weights were estimated and added to the family total. As reported, this was a minor factor.

The mean weight of food provided in each of the three groups served as the basis for calculating calories, protein, fat, carbohydrate, cholesterol, total saturated and unsaturated fatty acids, and linoleic acid. Food values were obtained from the Food Composition Tables of FAO (21), except those for corn meal for cholesterol and fatty acids. Locally determined values (6) were used for corn meal, while those for fatty acids were taken from Halliday and Noble (22), Hilditch (23), and tables compiled by Hayes and Rose (24). Cholesterol values were also taken from the latter reference.

The Families

In the seventy families, a total of 236 persons were

TABLE 1 Miscellaneous information on families studied in "La Saline" area of Port-au-Prince (given as means)

WORK CATEGORY OR STATUS OF FAMILY	NUMBER SUPPLYING INFORMATION	EARNINGS PER DAY*	DAYS WORKED PER WEEK	RENT PER MONTH	FAMILY SIZE		MEALS SERVED PER DAY
					Total	Children†	
Odd jobs	8	$0.47	5.2	$2.9	5.4	1.8	1.6
Factory workers	10	1.16	5.1	2.8	3.0	1.3	2.5
Unskilled workers	7	0.67	5.0	3.1	4.4	2.8	2.2
Skilled workers	7	0.90	—	2.6	3.8	1.8	2.2
Bakers, butchers, vendors	7	0.48	—	3.2	5.4	3.0	2.3
Fishermen	2	0.80	—	3.7	4.5	3.0	2.5
Shoemakers, tailors	6	0.60	—	4.0	5.2	3.0	2.5
Vendors—shoes, perfume	2	1.80	—	3.0	6.0	2.5	2.0
Military guard	1	1.10	—	owns‡	6.0	4.0	3.0
Chauffeurs and taxi drivers	3	2.80	6.0	—	6.0	2.6	3.0
No work	13	—	—	2.8	4.7	2.2	1.8
Women alone	4	—	—	2.0	3.8	1.8	1.8

*Means in some cases do not represent the entire number in category as only 40 of the 70 families gave information on wages.
†Includes all ages through early adolescence.
‡Refers only to the house, not the land.

studied as "adults." This breaks down to the following groupings: Class I, 26 families with 107 "adults"; Class II, 28 families with 97 "adults"; and Class III, 16 families with 32 "adults". Additionally, there were 70 children under six years old and a few other adults who were not included in the study proper, as their meals were taken elsewhere.

Further information concerning these families is detailed in Table 1. For the forty supplying income information and whose data are tabulated in this table, daily earnings ranged from 2 gourdes 35 centimes (47 cents) to 14 gourdes ($2.80). In thirteen families where the breadwinners were unemployed, the families lived on stipends from parents or earnings of the women. In the four households where women lived alone with their children, support came variously from a husband in another city, from petty selling, and from begging.

The families were not large. The averages for several occupational groups ranged from 3 to 6 members per family, with the average number of children from 1.3 to 3. Twelve families had no children. There is some evidence that these families are representative as to numbers of children. Mlle. Lucienne Gemeau, an FAO nutritionist (25), found that for 104 rural families near Port-au-Prince, the average number of living children was 3.6.

The small families may be due in part to the high death rate among children. Estimates of the Department of Public Health suggest that only about one-third of all children reach adolescence.

The number of pregnancies reported is of interest. Most of the women in the seventy families were of child-bearing age. In the poorest group (Class I), only one of 24 women acknowledged a current pregnancy, while 13 of 50 women in the two better-off groups (Classes II and III) reported the condition.

Food of the Area with Prices, Preparation, and Meal Patterns

Vegetables of the Haitian diet include many of those raised in temperate zones, as well as those of subtropical and tropical areas. Among the latter are the yam or *igname (Dioscorea alata)*, cocoyam or *malanga (Coloccasia esculenta* and *Xanthosoma saggitifolium)*, and cassava *(Manioc ultissama)*. More succulent foods, with fruits used as vegetables, include bread fruits or *veritable (Artocarpus incisa)* and *mirliton (Sechium edule)*, a squash-like food. Red and black beans are important staples. Cereal grains and products are mainly rice, millet, whole corn meal, and imported white flour.

Fruits available in the Port-au-Prince area include common tropical varieties, as well as the custard apple, sweet sop, and sour sop of the family Annonaceae, known locally as *cachimans*, and the Spanish lime or *queneppe (Melicocca bijuga)*, a small fruit with tart, translucent pulp. Avocados are also common, as are mangoes during two seasons.

The meats observed were mainly beef, goat, and pork. Some game meat was seen in rural markets in the cooked state. Fresh and cured fish were available in the city markets, but only cured fish was seen in rural markets. Prices of some of these foods are included in Table 2.

Milk is brought into Port-au-Prince daily, where a limited amount is used. Milk production frequently is a major source of cash income for rural families, many of whom feel they can ill-afford to keep any for home consumption. As far as could be determined, eggs are not a frequent item of the diet in these very poor families, or in the rural areas.

A number of fats were in evidence, cottonseed oil

TABLE 2 Costs in Port-au-Prince markets of commonly used foods

FOOD	WEIGHTS AS PURCHASED*	COSTS†	ESTIMATED COST
	gm.	*cents*	*cents/lb.*
Root vegetables			
Plantain and banana	841	4	2
Sweet potato	911	3.5	2
Potato	222	3	6
Cocoyam *(malanga)*	250	4	7
Yam *(igname)*	485	6	6
Flour and cereals			
Corn meal	460	3.5	3.5
Rice	525	13	11
Flour, white	275	7	12
Bread, white	290	10	16
Biscuits‡	96	5	24
Cassava bread	164	2	6
Beans			
Red and black#	485	8	8
Red	35	2	25
Sweets			
Sugar, white¶	30	1	15
Sugar, white¶	458	8	8
Sugar, brown	455	6	6
Sugar cake *(rapadou)*	98	1	4
Fats			
Oil, cottonseed¶	95	6	29
Oil, cottonseed¶	30	2	30
Margarine‖	45	1.5	15
Hydrogenated fat	40	2	23
Pork drippings	60	4	30
Meat and fish			
Beef, lean	216	10	21
Fish, fresh	270	10	17
Cod fish, salt	40	4	45
Herring, salt	30	1	15
Milk, fresh	1000	12	5
Salt, crude	445	1	1

*Weights are averages obtained from two to four purchases, as are the costs in most cases.

†Purchases were paid for in Haitian currency; 1 cent is equal to 5 centimes.

‡Biscuits—a local term for small rolls or loaves.

#Black beans are from 1 to 2 cents cheaper.

¶Separate purchases in the market.

‖Said to be local product.

being the most abundant. Boulos estimated that 80 per cent of the fat eaten in Port-au-Prince is locally produced cottonseed oil. Additionally there were salt pork, pork drippings, and three solid fats: imported lard, hydrogenated oils, and local pork fat, known also as *lard* in the vernacular. Apparently any of these may be referred to as *mategue*, though in "La Saline" the term was used principally for hydrogenated oil. There also was a margarine or *beurre de cuisine* sold by the spoonful. This is a cheap substitute for butter made from hydrogenated fat, water, coloring, and sodium bicarbonate (6).

Sugar is sold as refined and brown, and as a dark cake *(rapadou)*. *Cola*, a popular local drink, is reported to contain 12 per cent sugar (6), but judging from the taste, the content may be higher at times. All salt was crude sea salt. Large quantities are purchased, but there was considerable waste, as it is taken up in small handfuls and washed under water to remove foreign particles before it is added to food.

Many prepared foods are sold at stands, including: bread and rolls *(biscuits)*, flat rounds of cassava bread *(cassav)*, corn meal gruel *(akasan)*, fried or boiled plantain *(banane)*, various vegetable stews *(bouillons)*, rice and beans *(diri et pwa)*, fish *(pwaso)*, bits of cooked pork *(vian du porc)*, and fried cakes *(marinades)*, which are often used between biscuits or bread as sandwich filling moistened with a water sauce containing oil and tomato.

The variety of foods served at a meal is necessarily small. However, cooking is not done casually by the urban cook, and flavor is a matter of real importance to her, as apparently is cleanliness. Small bunches of assorted vegetables and herbs *(especes)*, related to the bouquet *garni* of the French, are sold for a few centimes and are used to flavor dishes by all but the most destitute. Bean soups are prepared with care, with the hulls removed after soaking to give a smooth texture. Water in which the beans are soaked is usually used for cooking. The vegetable stews may contain *mirliton*, eggplant, cabbage, yam or other tubers, carrots, and perhaps plantain, singly or in some combination, and with some fat and possibly a small amount of meat. Fresh fish, meat, and poultry often are cooked with oil, citron juice, peppers, garlic, and tomatoes. Such dishes are not reserved for the well-off. They were observed in Class II and III families, though not in Class I. Often the quantity of flesh food used was very small.

In "La Saline" and other parts of Port-au-Prince, the main meal is prepared in the forenoon and eaten near noon. Men employed some distance from home have various arrangements for this meal. In "La Saline," those who worked from early morning hours until one or two o'clock ate with the family or soon thereafter. There were reports of men who came home to eat on meal breaks; for others, food was saved from the noon meal until late afternoon. In rural areas, the main meal is late in the day, especially for the men, many of whom work long hours with little or no food.

In most urban families breakfast was a light meal. The evening meal too was light, if taken at all. Typically, the third meal consisted of a beverage, with or without bread stuff, or of gruel, or possibly a milk pudding. The poorest people sometimes used sweetened ice water as the only source of energy in the evening; at the next level, the sweetened water might be flavored with fruit juice. As there is no refrigeration, ice was purchased in quantities sufficient for the beverages.

A very meager meal pattern prevails for many in the rural areas. Duvalier refers (6) to families who nourish themselves almost entirely on mangoes when they are in season. In fact, during the mango and avocado season, the sale of soft drinks and bread is greatly reduced.

Apparently many urban and rural workers obtain additional calories from a crude local rum *(clairin)*, said to be taken in lieu of breakfast. The extent of this practice in the families studied was difficult to determine.

Dietary Intakes of Specific Groups

The average amount of raw edible food per adult per day in three classes of slum families in "La Saline" is given in Table 3. In Class I, the average expenditure per adult per day for food was 25 centimes (5 cents); in Class II, the figure was 65 centimes (13 cents); and in Class III, it was 1 gourde and 35 centimes (27 cents). Also in the same table, the dietary intake of patients at Hospitale Generale is given, as is that of a number of the "miscellaneous urban and rural" persons noted earlier.

The root vegetable used by Class I families was largely sweet potato, although plantain was eaten by all in this class one or more times a day. In Class II and III, all root vegetables were eaten except white potato, used only in Class III. Corn meal and rice were equally included by most families. In Class I, the distribution of cereals was, on the basis of per adult per day: corn meal, 40 gm.; rice, 40 gm.; and millet, 8 gm. Of 23 families in this class using these foods, 11 had corn meal but no rice, 7 reported rice only, and 5 had both cereals. Three of the 11 using corn meal reported millet as a second cereal.

All but the poorest families in "La Saline" served beans more than once during the study. Sugar and fat were used by all. However, the quantity of fat was quite restricted among the most destitute.

Most of those in Class I reported some meat and fish once during the study, while in Class II these foods were included twice during the three days except for five families, who served it once and two who reported no meat or fish during the study. All in Class III used these foods on each day of study.

TABLE 3 **Mean weight of raw, edible food per adult per day in each group studied or interviewed***

FOOD	EDIBLE WEIGHT								
	"La Saline"†			Miscellaneous subjects‡					
	Class I	Class II	Class III	Hospital charity patients	Urban		Semi-rural and rural (6 families)	Rural	
					23 persons	4 persons		3 active families	5 village persons¶
	gm./day	*gm./day*	*gm./day*	*gm./day*	*gm./day*	*gm./day*	*gm./day*	*gm./day*	*gm./day*
Starchy foods									
Roots, tubers, plantain, and banana	231	207	154	200	195	451	568	590	295
Cereal grains (dry wt.)	88	110	144	120	99	88	178	100	70
Beans, dry—red, black, and Congo	35	47	94	50	59	49	108	63	30
Flour, wheat—white	10	31	41	120	31	52	25	0	11
Sugar	15	25	43	30	25	47	36	0	18
Fats									
Oil, cottonseed	9	23	44	35	15	25	18	4	5
Margarine, hydrogenated fat	3	6	18	15	1	5	0	0	0
Salt pork, fat back	2	4	10	0	1	10	11	4	4
Avocado	30	18	13	0	0	34	16	55	53
Coconut	2	4	13	0	0	0	0	0	0
Protein foods									
Beef, lean, or goat	3	23	48	35	33	50	76	0	11
Fish, cured	4	7	11	25	10	0	5	0	5
Fish, fresh	0	9	24	0	10	14	0	0	0
Milk, fresh	7	31	183	200	100	245	20‖	0	35
Eggs	0	0	2‖	0	0	20	0	0	0
Vegetables and fruits									
Greens	5	12	18	0	20	20	45	0	0
Eggplant, mirliton, and bread fruit	10	10	12	100	15	0	50	40	25
Citrus fruits, mangos, and tomatoes	7	20	35	25	10	12	20	114	0
Onion, garlic	1	1	5	0	0	0	0	0	0

*Children over six years included in means of families.
†Means based on three days for all except 10 families in Class I.
‡Based on one day except for the hospital charity patients and semi-rural families, where weekly estimates were included.
¶Middle-aged or older, sedentary persons.
‖One family or person only used the food.

Milk was included by only one family in Class I, by 15 in Class II, and by 12 in Class III. Those in the latter two groups who used no milk during the three days said that milk was used at some time during every week. The milk was used principally by women and children, though men obtained some in coffee and pudding.

Diets of the miscellaneous urban and rural people were similar to those in "La Saline." Corn meal was heavily relied upon in the rural areas, where corn is raised and the meal is ground on simple, hand-operated mills. The rural families indicated in Table 3 as "active" had no meat on the day of the interview. As far as could be determined, meat is not a regular item of their diet. The five "sedentary" villagers lived in families where meat was purchased twice a week when local markets were held near-by. The younger adults of these families probably consumed from 2 to 3 oz. meat on market days.

The diet of the hospital patients was planned to be acceptable to the average charity patient and to provide for his nutritive needs insofar as possible with the money available. It was said to be enjoyed by all able to consume it and to provide for marked gains in weight by many. This fare is comparable to that of Class III families in "La Saline."

Nutrients Considered

The caloric values of the diets are given in Table 4, as are values for nutrients specified earlier. For Class I, the food provided 980 calories daily per adult; for Class II, 1428 calories; and for Class III, the poor group with highest earnings, 2307 calories. The caloric value of the mean diet of the five sedentary persons in the rural village was similar to that of Class I families in "La Saline"; that of 23 urban persons (including 9 women attending a maternity clinic) was similar to that of Class II families, as was that of the three "active" rural families. The caloric value of the diet of the Class III

TABLE 4 Values of certain nutrients supplied by the raw, edible food per adult per day in specified groups

GROUP	CALORIES	PROTEIN		CARBOHYDRATE	FAT		FATTY ACIDS		LINOLEIC ACID	CHOLESTEROL
		Animal	Vegetable		Animal	Vegetable	Saturated	Unsaturated		
		gm.	*gm.*	*gm.*	*gm.*	*gm.*	*gm.*	*gm.*	*gm.*	*gm.*
"La Saline"										
Class I	980	2	23	166	3	24	6	17	6	10
Class II	1428	11	31	210	8	42	12	34	15	53
Class III	2307	25	43	340	20	74	28	59	26	116
Miscellaneous										
Hospital charity patients	2093	24	42	307	11	67	17	41	22	68
Urban (23 persons)	1328	16	31	216	11	26	10	23	10	70
Urban (4 persons)	1982	24	34	304	25	43	19	45	17	236
Semi-rural and rural (6 families)	2231	18	54	394	16	30	12	30	13	118
Rural (3 active families)	1353	trace	37	287	4	26	6	20	6	6
Rural (5 village persons)	998	5	20	171	6	23	7	19	6	23

families in "La Saline," the semi-rural families, and the hospital charity patients was similar.

Using the traditional figures 4, 4, and 9 respectively for protein, carbohydrate, and fat, 10 per cent of the total calories of the Class I families was derived from protein, 24 per cent from fat; in Class II, this distribution was 11 and 31 per cent, while in the Class III, calories from protein were similar to levels of Classes I and II, and those from fat, 34 per cent. Distribution of calories in the miscellaneous group was comparable to that in "La Saline." Considering the percentages from fat only in the more generous diets of this group, there was a distribution of 32, 30, and 19 per cent respectively for the hospital patients, the four urban Class III persons, and the semi-rural group.

For the poorest, protein from animal sources was negligible. The Class III families and the hospital patients were relatively well supplied with animal protein. In all diets, cereal grains contributed significantly to the total protein.

Again for the poorest families, about 88 per cent of the fat was of vegetable origin, with cottonseed oil, avocados, and whole corn meal, the important sources. At the next level of caloric intake, 70 to 78 per cent of the fat was of vegetable origin. In the more generous diets of Class III, the hospital patients, the four urban persons, and the semi-rural group, 61 to 86 per cent of the fat was so obtained.

The unsaturated fatty acids were well supplied in the more generous diets, as would be expected. Intake of the essential fatty acid, linoleic, was also generous. In Class III diets, 25 to 28.2 per cent of the total fat was calculated to be linoleic acid. At other levels of fat and caloric intake, 20 to 30 per cent of the total was linoleic acid.

Cholesterol was negligible or low in all diets, ranging from 6 mg. per person per day, where foods of animal origin were essentially lacking, to 236 mg. for the diet that included egg. The mean cholesterol content of the diet for Class III (116 mg.) and the semi-rural group (118 mg.) may be more representative of the diets of the better-off lower class persons, as eggs do not seem to be a regular item of these diets.

Discussion

The extent of undernutrition in "La Saline," which would be expected in view of the meagerness of the diets, is given in Table 5. These calculations are based on tables of the Metropolitan Life Insurance Company (26, 27). Nearly all of these people were judged to have small frames. If this judgment was in error, the degree of undernutrition would have been even greater.

Of a total of 102 adults in Classes I and II who were weighed, 40 were from 10 to 30 per cent below standard weights, while 19 were from 5 to 10 per cent below. More than half the 13 listed as unemployed and in poor health were from 5 to 30 per cent underweight. In Class II, where men were employed regularly, the weight of 14 of 19 men was essentially normal. As the mean caloric intake of this class was low, it seems probable that some of them ate food at work that was not reported. It is also possible that they received a greater portion of the food served at home than that represented by the mean. More than half the women of this class were considerably underweight, as were the children.

The physical activity of many of the urban people considered here may have been less than that of a comparable group in the United States. Some of the men in "La Saline" reported working hours averaging about 6.5 per day. There appeared to be few other physical activities requiring any large expenditure of energy. Certainly the physical demands on these urban lower class women were less than moderate. Possibly there may also have been a significantly lower muscle tonus as the result of the tropical climate (28). Furthermore the state of undernutrition itself may well lower the basal metabolism, so that caloric requirements are further decreased.

TABLE 5 Weights of adults in "La Saline" compared with Metropolitan Life Insurance Company standards (26, 27)*

SUBJECTS	NUMBER OF SUBJECTS†	WEIGHT		HEIGHT		PERSONS IN SPECIFIED WEIGHT CATEGORIES				
		Average	Range	Average	Range	Normal to 5% below standard	5–10% below standard	10–20% below standard	20–30% below standard	More than 30% below standard
		lb.	*lb.*	*in.*	*in.*					
Class I										
Men	25	111	92-146	63.5	60-69	11	6	5	3	0
Women	34	103	66-120	60	58-67	11	8	9	5	1
Class II										
Men	19	124	98-143	65.2	62-67	10	4	4	1	0
Women	24	107	81-121	63.4	55-67	10	1	12	1	0
Class III										
Men	11	131	108-150	67	63-72	6	5	0	0	0
Women‡	13	111	100-139	62.5	59-62	4	3	1	0	0

*From *Statistical Bulletin* of the Metropolitan Life Insurance Company (26, 27).

†Pregnant women and children, from six years through adolescence, were not included.

‡Two women in Class III were 5 per cent above the standard weight, and three were from 15 to 25 per cent above in relation to small frames.

Nevertheless, it is difficult to understand how rural families indicated as "active" could sustain themselves for any period of time on food intakes providing only 1300 calories. One of these families is shown in the photograph. The man in the group weighed 108 lb. and was 64 in. tall, while the woman's weight was 112 lb. with height of 64.5 in.

Where the poorest urban families are concerned, it may be that the amount of sugar was reported inaccurately. Most Haitians are said to enjoy large amounts of sugar, yet according to reports by the two lower classes, the mean intake was only 15 and 25 gm. Possibly there was some store of this staple on hand, despite limited space in the homes. The frequency with which corn meal was used, as well as the quantities used, may have been reported inaccurately also. Corn meal is the standard diet of prisoners. It therefore is seldom served to guests, and many are said to be unwilling to admit the quantity of meal actually consumed because of the association.

It is well recognized that many factors may affect the long-term nutrition of peoples in such environments. Variation in the availability of wild or low-priced fruits and nuts are among these, as is variation in rainfall which affects the total food supply. For rural Haitians, deaths attributed to starvation due to droughts in recent years run into the thousands.

Where urban families are concerned, it is necessary to emphasize that income fluctuates widely. Families placed in Class II on the basis of food purchases and income might well be in another category within a matter of weeks. Over the year, the average diet in this poor section of the city may fall somewhere between that described for the three classes. There would always be, of course, the indigents who at one time or another have little food.

As regards a possible causative relationship between diet and atherosclerosis, one would not expect the meager diets of some of the Haitians studied to be conducive to high blood levels of cholesterol and lipids. In fact, quite low levels might be expected for any of those consistently undernourished.

The more generous diets are of particular interest. The percentage of total calories derived from fat is considerably higher than reported for populations with a low incidence of atherosclerosis. Yet even with the mean fat intake of Class III at 94 gm. per person and 31 per cent of the total calories so provided, the intake seems low in comparison with accepted values for fat consumption in the United States. According to a recent analysis by McCann and Trulson (29), based on data from the United States Department of Agriculture, 148 gm. fat were available per person per day in the United States in 1955 at the retail level. Granting, as pointed out by the authors, that this figure may differ somewhat from that of fat actually consumed, doubtless the average consumption is appreciably higher than that of most Haitians.

Linoleic acid appears to have supplied a greater percentage of the total fat in these Haitian diets than has been tentatively estimated for the United States (29), being approximately 12.7 per cent of the total in the latter and more than twice this in the Haitian diets.

It is recognized, of course, that differences other than those in diet may exist where the environment of two countries is concerned. Food habits, however, may constitute a significant difference. The comparable dietary study in the Charleston area, to be reported later, may emphasize further differences in food habits.

Summary

Typical diets of lower-class groups and individuals in Haiti have been reported. Mean caloric values

Rural Haitian family classified as "active." The man is 64 in. tall, weighs 108 lb., while the mother is 64.5 in. in height and weighs 112 lb.

ranged from aproximately 1000 to 2300 per adult per day, with mean protein intake ranging from 25 to 72 gm. and mean fat intake from 27 to 94 gm. Fats consumed were predominantly of vegetable origin. Linoleic acid supplied as much as 28 per cent of the total fat at the higher level of fat intake.

More than half of 126 adults weighed were from 5 to 30 per cent below Metropolitan Life Insurance Company standards for height and sex. Individuals having the more generous diets appeared to meet these standards or be a little above them, and a few on diets of low caloric value even met these criteria.

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Sodium in Foods for a 100-Mg. Sodium Diet[1]

LEWIS K. DAHL, M.D.,
LORRAINE M. TASSINARI,
and NORMA GILLESPIE

Medical Department,
Brookhaven National Laboratory,
Upton, New York

SODIUM RESTRICTION is a common medical prescription today, but diets which are both low in sodium and palatable are not easily obtained. During investigations on hypertension over the past ten years (1-8) such a combination has been evolved. Although this diet has been used in association with a series of prolonged studies in metabolic wards, it has been found practical to prepare at home by patients as well. However, from time to time during the routine chemical analysis of these diets, we have found sodium in excess of that predicted from the listed values for specific foods. Therefore, we gradually began analyzing the foods, and this paper is primarily a summary of sodium analyses of foods used in our low-sodium diets. Such primary data are relatively uncommon; the last similar analysis was that of Bills *et al.* (9) which included a wide variety of foods known to be too high in sodium content for inclusion in the usual "low-sodium" diet. The present list is not meant to be all-inclusive, but since it has been found highly useful in a program which allows sodium intakes of about 100 mg. per day, it was thought that it would be of aid in the preparation of low-sodium diets generally.

Method

CHEMICAL ANALYSIS

Analysis for sodium was made with a Baird Model DB2 flame photometer using an internal lithium standard. When necessary, samples were homogenized in a Waring Blendor; aliquots were removed for hydrolysis with concentrated nitric acid according to the technique of Wallace *et al.* (10), and demineralized water was added to make a final volume appropriate for the concentration of sodium in the sample. As a check on this method, fourteen foods which might be assumed to hydrolyze with difficulty, e.g., meats, egg, milk-protein food, were analyzed in duplicate using a 20-hr. hydrolysis in 1 NH_2SO_4 as well as the shorter nitric acid hydrolysis. The nitric acid technique gave values which averaged 1.3 per cent lower (SD.±2.97, range +4.3 to —5.5 per cent) than with the longer method, a difference which has been disregarded in the calculations here.

SELECTION OF FOODS

No attempt was made to survey completely the field of low-sodium dietetic foods, and therefore the omission of any from this list does not imply that they would be unsatisfactory. We have used one brand of dietetic foods[2] to a large degree because of this firm's practice of sending out new analytical data with each pack of food processed. We have included the brand names only in the case of very well known items. This seems justified since, unfortunately, there is no guarantee that common brand-name foods will not differ significantly in sodium content in the future and without notification, since most of them are not sold primarily for the "low-sodium" market. Where it has been possible, we have indicated the geographic origin of the commodity, for it is known that the electrolyte content of fruits and vegetables varies with the content in the soil in which grown (11), and the source of fresh items in particular will change with the seasons. Analyses were confined chiefly to basic commodities and unprocessed foods from which low-sodium diets may be made up by others. We have included the contents of some baked foods made up in our own kitchen, because of a number of requests from outside sources for this kind of information.

Results

The results of these analyses are summarized in the Tables 1 and 2. It will be seen that for the most part the present data are in agreement with earlier analyses (12). In some instances, e.g. tea, where the difference between the present analysis and earlier ones is large, the net change in sodium intake would be small, because of the small amount used in a daily diet. In other cases, e.g. chili sauce, catsup, commer-

[1]This work was carried out under the auspices of the United States Atomic Energy Commission. Received for publication February 19, 1958.

[2]Cellu.

TABLE 1 Sodium content of selected foods determined by analysis, with comparison of previous estimates (12)

FOOD	LOCATION WHERE PERTINENT	CONTENTS AND/OR DESCRIPTION	SODIUM	
			Previous estimates (12)	This study
			mg./100 gm.	*mg./100 gm.*
Beverages				
Coca-Cola (C)*	—	—	1.0	2.9
Coffee (C)	—	dry, regular grind	2.0	2.4
Coffee, decaffinated (C)	—	dry, instant	6.0	21.3
Gingerale (C)	—	—	8.0	3.6
Hi Spot (C)	—	lemon soda. sodium citrate	1.0	10.4
Root beer	—	—	8.0	3.7
Tea (C)	—	orange pekoe, pekoe, cut black tea	4.0	27.6
7-Up	—	lemon soda	1.0	8.7
Breads				
Biscuits, cheese	BNL kitchen	all-purpose flour, low-sodium baking powder, Lonalac, sugar, low-sodium American cheese, hydrogenated shortening, water	—	3.2
Biscuits, plain	BNL kitchen	all-purpose flour, low-sodium baking powder, Lonalac, sugar, hydrogenated shortening, water	—	2.8
Low-sodium bread	BNL kitchen	all-purpose flour, sugar, hydrogenated shortening, Lonalac, water, yeast	—	2.9
Low-sodium bread (C)	Long Island	wheat flour, sugar, vegetable shortening, yeast, water	1.0	2.9
Matzos (C)	New York City	unsalted	1.0	3.0
Candy				
Chewing gum (C)	—	spearmint	22.0	32.0
Jelly rings (C)	—	—	41.0	54.7
Fudge	BNL kitchen	cocoa, chocolate sirup, granulated sugar, Lonalac, unsalted butter, walnuts, vanilla extract	41.0	9.3
Marshmallows (C)	—	—	—	37.0
Necco wafers	—	assorted flavors	5.0	7.6
Cereals				
Cream-of-Wheat (C)	—	farina dry, regular	2.0	1.9
Maltex (C)	—	dry, quick cooking	4.0	1.8
Oatmeal (C)	—	dry, old fashioned	1.0	3.2
Oats, rolled (C)	—	dry, quick cooking	1.0	3.7
Pettijohn's (C)	—	dry	2.0	2.4
Ralston (C)	—	dry, instant	1.0	1.7
Rice, Puffed (C)	—	—	4.0	9.5
Wheat, Puffed (C)	—	—	6.0	8.5
Wheat, Shredded (C)	—	—	2.0	4.2
Wheatena (C)	—	dry, quick cooking	2.0	2.1
Cheese				
American (D)†	Chicago	low-sodium	9.5	8.8
Cottage (D)	New York City	low-sodium	30.0	16.6
Condiments				
Chili sauce (D)	—	—	13.0	34.7
Catsup (C)	Illinois	—	10.3	27.4
Desserts				
Cake, spice	BNL kitchen	hydrogenated shortening, granulated sugar, whole egg, all-purpose flour, low-sodium baking powder, Lonalac, lemon rind, cinnamon, nutmeg, walnuts	—	2.8
Cookies				
Butter	BNL kitchen	unsalted butter, granulated sugar, all-purpose flour, lemon juice, water	—	.7
Peanut butter	BNL kitchen	unsalted butter, granulated sugar, all-purpose flour, dietetic peanut butter, shelled peanuts, vanilla extract	—	4.4
Custard, baked	BNL kitchen	Lonalac, egg yolk, granulated sugar, vanilla extract	—	11.8
Date tapioca pudding	BNL kitchen	Lonalac, tapioca, egg yolk, granulated sugar, dates, vanilla extract	—	4.6
Gelatin				
Orange	BNL kitchen	plain gelatin, water, orange and lemon juice, granulated sugar	—	6.4
Pineapple	BNL kitchen	plain gelatin, water, crushed pineapple, granulated sugar, lemon juice	—	6.3
Ice cream				
Chocolate	BNL kitchen	Lonalac, all-purpose flour, granulated sugar, egg yolk, plain gelatin, water, cocoa, vanilla extract	—	6.7
Vanilla	BNL kitchen	Lonalac, all-purpose flour, granulated sugar, egg yolk, plain gelatin, water, vanilla extract	—	7.5
Ice				
Orange	BNL kitchen	orange and lemon juice, orange rind, granulated sugar, water	—	1.1
Raspberry	BNL kitchen	frozen raspberries, lemon juice, granulated sugar, water	—	3.9
Strawberry	BNL kitchen	frozen strawberry pulp, granulated sugar, lemon juice, water, plain gelatin	—	10.1
Pie				
Apple	BNL kitchen	all-purpose flour, hydrogenated shortening, granulated sugar, fresh apples, cinnamon, water	—	2.5
Cherry	BNL kitchen	all-purpose flour, hydrogenated shortening, canned red sour pitted cherries, cornstarch, granulated sugar, water	—	3.3
Blueberry	BNL kitchen	all-purpose flour, hydrogenated shortening, frozen blueberries, cornstarch, granulated sugar, water	—	1.4
Dietary supplements				
Gevral (C)	—	powder	200 (max.)	22.7
Lesofac (C)	—	powder	20.0	7.8
Lonalac (C)	—	powder	20.0	7.9; 8.8
Eggs				
Whites only	—	fresh, raw	150.0	143.0
Whole	—	fresh, raw	130.0	136.0
Yolks only	—	fresh, raw	85.0	53.0

TABLE 1—continued

FOOD	LOCATION WHERE PERTINENT	CONTENTS AND/OR DESCRIPTION	SODIUM	
			Previous estimates (12)	This study
			mg./100 gm.	*mg./100 gm*
Fats and oils				
Butter	—	unsalted	5.0	5.2
Hydrogenated shortening (C)	—	vegetable shortening	0.4	0.6
Fish				
Bluefish	Long Island	fresh, raw, less skin and bone	68.0	74.0
Cod	Long Island	fresh, raw	65.0	232.0; 134.0
Flounder	Long Island	fresh, raw, fillet	68.0	82.0
Salmon				
Canned (D)	—	dietetic pack	40.0	33.4
Fresh	—	raw, less skin and bone	50.0	51.0
Tuna (D)	—	dietetic pack, chunk style	40.0	32.9
Fruits				
Apple	New York State	raw, McIntosh, with skin, less core	2.0	2.0
Applesauce,				
Fresh	New York State	made from McIntosh apples and water	2.0	1.5
Canned				
Brand I (C)	—	—	2.0	28.0; 33.0
Brand II (C)	—	—	2.0	1.2
Brand III (C)	—	—	2.0	2.5
Brand IV (C)	—	—	2.0	2.5
Brand V (C)	—	—	2.0	2.3
Apricots				
Canned (D)	—	dietetic pack	1.4	1.7
Canned (C)	—	unpeeled halves in sirup	4.0	1.8
Dried	—	Blenheim, cooked	11.0	3.4
Avocado	—	raw	3.0	4.7
Banana	—	raw	1.0	1.3
Blackberries (D)	—	dietetic pack, canned	0.4	1.1
Blueberries				
Raw	Long Island	—	1.0	1.5
Frozen (C)	—	in sirup	1.0	1.4
Cherries				
Bing				
Raw	Washington State	—	2.0	0.6
Canned				
Brand I (C)	—	in sirup	2.0	5.3
Brand II (C)	—	in sirup	2.0	4.8
Brand III (D)	—	dietetic pack, in sirup	1.0	1.1
Royal Anne, canned				
Brand I (C)	—	in sirup	2.0	4.1
Brand II (C)	—	in sirup	2.0	5.5
Brand III (D)	—	dietetic pack, in sirup	0.8	1.8
Cranberry sauce, canned				
Brand I (C)	—	cranberries, sugar, water	1.0	10.8
Brand II (C)	—	cranberries, sugar, water	1.0	14.7
Cranberries, raw (C)	—	—	1.0	2.7
Dates (C)	California	pitted	1.0	1.6
Figs, Kadota, canned				
Brand I (C)	—	in sirup	2.0	6.7
Brand II (C)	—	in sirup	2.0	3.4
Fruit cocktail, canned				
Brand I (C)	—	in sirup	5.0	6.9
Brand II (C)	—	in sirup	5.0	6.1
Brand III (D)	—	dietetic pack, in sirup	2.0	2.4
Grapefruit				
Raw	California	segments	1.0	1.2
Canned (D)	—	dietetic pack, segments	2.5	2.9
Grapes, raw				
Emperor	California	—	4.0	9.8
Thompson seedless	—	—	4.0	2.1
Melon, raw				
Cantaloupe	East Coast	—	13.9	14.0
Honey dew	East Coast	—	—	10.4
Santa Claus	California	—	—	33.6
Watermelon	East Coast	—	1.0	1.5
Oranges, raw, Navel				
Sample I (C)	California	segments	1.0	0.7
Sample II (C)	California	entire orange, less seeds	—	1.6
Peaches				
Elberta free-stone, canned				
Brand I (C)	—	in sirup	2.0	6.7
Brand II (C)	—	in sirup	2.0	3.8
Yellow cling				
Raw	New Jersey	less skin	1.0	1.1
Canned (D)	—	dietetic pack	3.0	2.1
Frozen (C)	—	in sirup	3.0	1.5
Pears				
Bartlett				
Raw	—	with skin, less core	2.0	1.2

TABLE 1—continued

FOOD	LOCATION WHERE PERTINENT	CONTENTS AND/OR DESCRIPTION	SODIUM	
			Previous estimates (12)	This study
			mg./100 gm.	*mg./100 gm.*
Pears				
Bartlett, *continued*				
Canned				
Brand I (C)	—	in sirup	2.0	8.4
Brand II (C)	—	in sirup	2.0	8.0
Brand III (D)	—	dietetic pack	2.6	3.5
Bosc, raw	—	with skin, less core	2.0	1.3
D'Anjou, raw	Oregon	with skin, less core	2.0	1.1
Pineapple				
Raw	—	—	2.0	1.2
Canned				
Brand I (C)	—	crushed, in sirup	1.0	8.1
Brand II (C)	—	sliced, in sirup	1.0	1.3
Brand III (D)	—	dietetic pack, sliced	1.5	1.2
Frozen (C)	Hawaii	chunks, water and added sugar	1.0	1.6
Plums, red, raw	—	—	1.0	1.1
Prunes, dried				
Brand I (C)	—	cooked	4.0	5.7
Brand II (C)	California	cooked	4.0	2.1
Prune plums, canned				
Brand I (C)	—	in sirup	1.0	5.3
Brand II (C)	Oregon	in sirup	1.0	6.1
Brand III (D)	—	dietetic pack	0.6	2.1
Raisins, dried (C)	California	seedless	21.0	8.8; 2.0
Raspberries, red, frozen				
Brand I (C)	—	in sirup	2.0	5.0
Brand II (C)	—	in sirup	2.0	1.1
Rhubarb, frozen (C)	—	in sirup	2.0	1.2
Strawberries				
Raw	—	—	2.0	1.5
Frozen (C)	—	in sirup	2.0	1.2
Tangerine, raw	—	segments	2.0	1.6
Fruit juices				
Apple juice, canned (C)	New York	pure, natural	1.0	0.8
Apricot nectar, canned (C)	—	—	2.0	4.4
Cranberry juice cocktail, canned (C)	—	—	1.0	1.4
Grape juice, canned				
Brand I (C)	—	pure Concord, unsweetened	1.0	2.3
Brand II (C)	—	pure Concord, unsweetened	1.0	3.2
Grapefruit juice				
Fresh	California	—	1.0	0.6
Canned (C)	—	unsweetened	2.0	1.0
Frozen concentrate (C)	—	sugar added; diluted 1:3	2.0	1.9
Lemon juice				
Fresh	California	—	2.0	0.8
Frozen (C)	California	pure	2.0	1.8
Orange juice				
Fresh	California	Navel oranges	1.0	0.6
Canned (C)	—	unsweetened	1.0	1.0
Frozen concentrated				
Brand I (C)	—	diluted 1:3	1.0	1.8
Brand II (C)	—	diluted 1:3	1.0	4.6
Peach nectar, canned (C)	—	—	3.0	2.9
Pear nectar, canned (C)	—	—	2.0	1.0
Pineapple juice, canned (C)	—	unsweetened	1.0	0.8
Prune juice, canned (C)	—	unsweetened	2.0	6.5
Tangerine juice, canned (C)	—	sugar added	0.6	1.0
Jam, jelly, and preserves				
Grape jelly				
Brand I (C)	—	pure	7.0	26.1
Brand II (C)	—	—	7.0	14.1
Brand III (C)	—	—	7.0	5.6
Brand IV (C)	—	—	7.0	16.9
Orange marmalade (C)	—	—	13.0	12.0
Raspberry preserves (C)	—	pure, with seeds	16.0	1.6
Strawberry preserves (C)	—	pure, with seeds	16.0	24.3
Macaroni products				
Macaroni (C)	—	dry, elbow	12.0	2.7
Noodles, egg				
Brand I (C)	—	dry, not less than 5.5% egg solids	6.5	11.6
Brand II (C)	—	dry, 5.5% egg solids	6.5	80.0
Spaghetti (C)	—	dry	12.0	3.8
Miscellaneous items				
Baking powder (D)	—	low-sodium; contains: potato starch, phosphate of calcium and potassium bicarbonate	6.0	7.1
Cocoa (C)	—	dry	5.0	6.0
Cornstarch (C)	—	—	4.0	7.6
Flour (C)	—	all-purpose, white	2.0	2.0
Honey (C)	—	pure	7.0	3.4
Maple sirup (C)	—	pure	14.0	5.1
Peanut butter (D)	—	dietetic pack, unsalted	1.5	1.9

TABLE 1—concluded

FOOD	LOCATION WHERE PERTINENT	CONTENTS AND/OR DESCRIPTION	SODIUM	
			Previous estimates (12)	This study
			mg./100 gm.	*mg./100 gm.*
Miscellaneous items, *continued*				
Rice	Carolina	long grain, dry	4.0	2.5
Tapioca (C)	—	dry	4.0	2.4
Yeast (C)	—	dry	11.0	19.8
Nuts				
Peanuts (C)	—	roasted, shelled	4.0	1.2
Walnuts (C)	California	halves and pieces	2.0	2.4
Sugar				
White (C)	—	confectioners, super X powdered, 3% cornstarch added	0.5	1.1
White (C)	—	granulated	0.5	0.7
Vegetables				
Asparagus				
Canned (D)	—	dietetic pack, green spears	2.0	2.1
Frozen (C)	—	green spears, cooked	2.0	1.9
Beans, green				
Fresh	Long Island	cooked	3.0	1.8
Canned (D)	—	dietetic pack, whole, stringless	20.0	2.1
Frozen (C)	—	stringless, cut, cooked	2.0	1.3
Frozen (C)	—	French style, cooked	3.0	1.8
Beans, Lima				
Fresh	Long Island	cooked	1.0	2.5
Canned (D)	—	dietetic pack, small green	2.0	1.8
Beans, pea (C)	—	dried	1.0	2.8
Beets, canned (D)	—	dietetic pack, sliced	64.0	60.5
Broccoli, frozen (C)	—	spears, cooked	13.0	16.5
Brussels sprouts (C)	—	cooked	9.0	19.6
Cabbage				
Green				
Fresh	Long Island	raw	15.0	5.2
Fresh	Long Island	cooked	15.0	3.7
Red, fresh	—	cooked	32.0	15.7
Carrots, fresh	California	scraped, cooked	31.0	31.3
Cauliflower				
Fresh	Long Island	cooked	24.0	5.0
Frozen (C)	—	cooked	16.0	5.6
Corn, frozen (C)	—	golden sweet, whole kernel, cooked	9.0	1.6
Cucumber, fresh	Long Island	peeled, raw	5.0	1.1
Egg plant, fresh	Long Island	peeled, cooked	2.0	3.5
Lentils, dried (C)	—	jumbo	3.0	2.5
Lettuce, iceberg, fresh	—	—	15.0	12.0
Mushrooms				
Fresh	Pennsylvania	caps and stems, cooked	5.0	3.5
Canned (D)	—	dietetic pack, button	2.0	2.8
Onion, Spanish	Colorado	less skin, raw	7.0	2.3
Peas, canned (D)	—	dietetic pack	4.0	3.5
Pepper, green, fresh	Long Island	cooked	1.0	2.3
Potatoes, fresh				
Sweet	Maryland	baked, with skin	13.0	52.3
Sweet	Maryland	baked, less skin	4.0	27.2
Sweet	Maryland	boiled, less skin	4.0	30.6
White	Idaho	baked with skin	5.0	2.2
White	Idaho	baked less skin	1.0	1.9
White	Idaho	boiled less skin	1.0	2.8
White	Long Island	baked with skin	5.0	1.8
White	Long Island	baked less skin	1.0	1.5
White	Long Island	boiled less skin	1.0	2.1
Radish	Ohio	raw	14.0	5.0
Squash				
Acorn	Long Island	skin and seeds removed, cooked	1.0	1.5
Butternut	Long Island	skin and seeds removed, cooked	1.0	1.5
Summer	—	yellow, with skin and seeds, cooked	1.0	2.5
Zucchini	Long Island	with skin and seeds, cooked	1.0	1.5
Tomato				
Fresh	—	with skin and seeds, raw	3.0	1.4
Canned (D)	—	dietetic pack	2.5	1.5
Tomato juice, canned (D)	—	dietetic pack	2.0	2.9

*Regular commercial pack, available on the retail market.
†Dietetic pack.

cially bought noodles, and some of the meats and fish, the variation from calculated content might be substantial because of the quantity of food consumed.

We have no explanation for the high values found on two separate samples of fresh cod caught several weeks apart. Our general experience has been similar to that of Manery, who reported (13) that the sodium content of skeletal muscle was "remarkably constant throughout the animal kingdom from frogs, fish and fowl to dolphins and polar bears."

In Tables 3, 4, and 5 are shown three sample

TABLE 2 **Sodium content of various cuts of fresh meat, poultry, and game**

FOOD	DESCRIPTION	SODIUM		
		Previous estimates (raw meat) (12)	This study	
			Raw meat	Cooked meat
		mg./100 gm.	*mg./100 gm.*	*mg./100 mg.*
Beef				
Chuck	all visible fat removed, ground	65.0	81.5	96.0
Chuck	ground	65.0	54.8	80.6
Filet Mignon	—	65.0	45.8	65.4
Round	lean	65.0	43.2	58.3
Sirloin	lean	65.0	57.3	76.4
Chicken				
Broiler	breast meat	75.0	38.8; 41.4	53.2 ; 69.0
Broiler	dark meat (leg)	75.0	64.4; 47.1	107.4; 78.5
Capon	breast meat	75.0	40.7	58.1
Capon	dark meat (leg)	75.0	45.0	71.4
Duck, Long Island	breast meat	68.0	66.9	92.9
Duck, Long Island	leg meat	96.0	63.1	110.7
Lamb				
Loin	chop, lean	98.0	60.6	93.2
Leg	—	78.0	60.9	87.0
Liver				
Calf	—	110.0	75.0	102.7
Chicken	—	84.0	80.3	92.3
Turkey	—	51.0	74.8	97.1
Pork	loin	55.0	38.6	56.8
Rabbit, domesticated				
Loin	—	34.0	35.9	51.3
Leg	—	47.0	55.3	73.7
Turkey	breast meat	40.0	61.4	81.9
Turkey	dark meat (leg)	92.0	69.5	99.3
Veal				
Leg	—	50.0	43.7	73.0
Chop	lean	50.0	59.5	88.8

TABLE 3 Sample menu for 100-mg. sodium diet at 1800 calorie level*

FOOD	WEIGHT	CALCULATED SODIUM VALUE
	gm.	*mg.*
Breakfast		
Fresh orange segments	100	0.7
Oatmeal	30 (dry)	1.0
Low-sodium toast	50	1.5
Unsalted butter	10	0.5
Grape jelly	20	1.1
Lonalac (liquid)	240	2.4
Coffee	—	—
Noon meal		
Roast loin of pork	60	34.1
Frozen kernel corn	50	0.3
Sliced tomato	50	0.7
Butter (unsalted)	5	0.3
Low-sodium spice cup cake	50	1.4
Lonalac (liquid)	120	1.2
Tea	—	—
Evening meal		
Roast sirloin of beef	60	45.8
Baked Idaho potato (skin removed)	100	1.9
Frozen green beans	50	0.7
Butter (unsalted)	5	0.3
Canned sliced pineapple	100	1.3
Lonalac (liquid)	120	1.2
Tea or coffee	—	—
Evening nourishment		
Lonalac (liquid)	240	2.4
Banana	100	1.3
Total		100.1
Analyzed sodium value		91.6

*71 gm. protein, 78 gm. fat, 213 gm. carbohydrate (15).

TABLE 4 Sample menu for 100-mg. sodium diet at 2400-calorie level*

FOOD	WEIGHT	CALCULATED SODIUM VALUE
	gm.	*mg.*
Breakfast		
Canned Kadota figs (in sirup)	150	5.1
Cream-of-Wheat	30 (dry)	0.6
Low-sodium toast	75	2.2
Butter (unsalted)	15	0.8
Honey	30	1.0
Lonalac (liquid)	240	2.4
Coffee	—	—
Noon meal		
Breast of broiler	60	36.3
Rice	30 (dry)	0.8
Canned peas (dietetic pack)	50	1.8
Butter (unsalted)	10	0.5
Low-sodium bread	25	0.7
Canned Elberta peaches (in sirup)	150	5.8
Lonalac (liquid)	120	1.2
Tea or coffee	—	—
Evening meal		
Canned salmon (dietetic pack)	60	20.0
Baked Idaho potato (skin removed)	150	2.8
Canned asparagus spears (dietetic pack)	100	2.1
Butter (unsalted)	10	0.5
Low-sodium bread	25	0.7
Frozen raspberries	150	1.7
Lonalac (liquid)	120	1.2
Tea or coffee	—	—
Evening nourishment		
Fresh D'Angou pear	150	1.7
Low-sodium butter cookies	40	3.5
Lonalac (liquid)	240	2.4
Total		95.8
Analyzed sodium value		97.8

*81 gm. protein, 70 gm. fat, 377 gm. carbohydrate.

diets, calculated to contain 1800, 2400, and 3000 calories, and approximately 100 mg. sodium. These diets were prepared and analyzed in the standard fashion using our own sodium tables. The results indicate a satisfactory agreement between calculated and analyzed sodium content.

Summary

Analysis of selected low-sodium foods has been presented. With these data it has been possible to

TABLE 5 Sample menu for 100-mg. sodium diet at 3000-calorie level*

FOOD	WEIGHT	CALCULATED SODIUM VALUE
	gm.	*mg.*
Breakfast		
Fresh grapefruit juice	150	0.9
Instant Ralston	30 (dry)	0.5
Low-sodium toast	75	2.2
Butter (unsalted)	15	0.8
Pure raspberry preserves	30	0.5
Lonalac (liquid)	240	2.4
Coffee	—	—
Noon meal		
Roast leg of veal	60	43.8
Mashed white potato	150	4.1
Canned Lima beans (dietetic pack)	50	0.9
Butter (unsalted)	15	0.8
Low-sodium bread	25	0.7
Orange ice	100	0.5
Low-sodium spice cup cake	50	1.4
Lonalac (liquid)	240	2.4
Tea or coffee	—	—
Evening meal		
Grilled cheese sandwich made from		
Low-sodium American cheese	60	5.3
Low-sodium bread	50	1.5
Butter (unsalted)	15	0.8
Salad made from		
Canned sliced beets (dietetic pack)	30	18.2
Iceberg lettuce	25	3.0
Fresh applesauce (sweetened)	150	2.3
Lonalac (liquid)	240	2.4
Roasted peanuts	30	0.4
Tea or coffee	—	—
Evening nourishment		
Frozen strawberries	150	1.7
Low-sodium butter cookies	40	3.5
Lonalac (liquid)	240	2.4
Total		103.4
Analyzed sodium value		108.5

*102 gm. protein, 122 gm. fat, 386 gm. carbohydrate.

prepare palatable diets containing only 100 mg. sodium per day.

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What of the Future of School Lunch?

Because of the increase in enrollments in the secondary schools and because of the difficulty in meeting present-day classroom shortages, I believe we will find a great necessity for simplifying the concept of our school lunch departments to help reduce our school building costs.

School districts will eventually develop central kitchens where all meals can be prepared for the district without needless duplication of equipment and personnel in each individual school. Plate lunches can be prepared ahead of time in large quantities and transported to the individual schools for distribution.

It is possible that plate lunches could be prepared and then frozen much like the prepared frozen meals we find at the super markets. This would help eliminate waste and permit storage of meals until needed. It would only be necessary to have enough facilities at each individual school for heating these prepared frozen lunches and serving them.

Population increases and economic stresses will force many school districts to simplify their lunch department programs.—*H. Curtis Ittner, St. Louis architect, speaking before the American School Food Service Association in St. Louis on November 13, 1957.*

Amino Acid Composition of Bread Proteins[1]

RICHARD J. BLOCK, Ph.D., and RICHARD H. MANDL

Boyce Thompson Institute for Plant Research, Inc., Yonkers, New York

What is the extent of protein improvement which results from the addition of milk solids in bread making? Does it take bread out of the class of being only a calorie-supplier, with its chief protein poor-quality gluten? Analyses for amino acids of commercial bread samples from nine cities, reported here, indicated that the biologic value of bread protein is better than heretofore thought.

ALTHOUGH THE percentage of the total calories in the American diet supplied by bread has decreased in recent years, some 120 lb. bread are eaten per person per year (1). This food furnishes approximately 40 gm. protein per loaf (25 gm. per day), or as much protein as obtained from meat and milk combined (30 gm.) (2). These average figures, when applied to a population of some 170 million, suggest that appreciable numbers of individuals obtain a high percentage of their total protein intake from bread.

Since the early studies of Osborne and Mendel (3) on the nutritive value of proteins, it is generally recognized that the proteins of wheat flour, especially gluten (1.5 gm. lysine per 16 gm. nitrogen), are among the poorer proteins consumed in large amounts in the United States. This has resulted in the popular belief that the chief or sole function of bread is to supply calories. This impression, together with the medical reports that contraindicate obesity, have led many people to omit bread from reducing diets. The extent to which this poor opinion of bread is adhered to, in spite of the knowledge that all commercial white bread in the United States is enriched with the more important vitamins and minerals, suggests the importance ascribed by nutritionists and by the medical profession to the biologic value of bread proteins.

The National Research Council recommends from 6 to 11 per cent of the total calories as dietary protein. Proteins supply approximately 13 per cent of the total calories of wheat flour. However, because the proteins of flour contain only 2.0 to 2.2 gm. lysine per 16 gm. nitrogen (4, 5), more than half of the flour proteins is not available to the animal organism for the formation of new tissue when fed as the sole source of nitrogen. Modern commercial bread in the United States is no longer made from a "lean formula" (flour, water, and minor ingredients) but contains an appreciable quantity of milk and other proteins (6). It has long been recognized that milk proteins, especially lactalbumen, because of their plethora of lysine, threonine, and other essential amino acids, should be excellent supplements to wheat proteins (7). It was, therefore, of interest to determine the extent of protein improvement over wheat flour which is present in breads sold in the United States.

Experimental Procedure

Two loaves each of the fourteen largest selling brands of white and of whole wheat breads were purchased by associates in the following markets: New York City; Albany, New York; Louisville; Kansas City, Missouri; Oklahoma City; Washington, D. C.; San Francisco; Dallas; and Chicago. In this study, breads of the same brand name from two different locations were treated as two separate breads. In this way, twenty-five samples of white bread and thirty-one samples of whole wheat bread were pooled for study of the amino acid composition of white and whole wheat breads, respectively. Because this investigation was concerned with the amino acid pattern of commercial breads, it was deemed of interest to investigate also the amino acid composition of two commercial loaves which are claimed to be superior to the average loaf in protein value, namely, a cracked-wheat special formula bread and lactalbumen-milk-soybean flour enriched white bread.

The crusts were removed, and the crumb was dried

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TABLE 1 **Approximate content of protein and of amino acids in various breads**

NUTRIENT	WHITE BREAD		WHOLE WHEAT BREAD (pooled)	CRACKED WHEAT BREAD (individual)	MILK-PROTEIN ENRICHED BREAD (individual)	WHEAT FLOUR (4, 5)
	Pooled	Individual				
			Protein*			
Air-dried crumb (%)	15.0	16.3	17.6	16.1	21.5	—
Ptyalin digest residue (%)	69.2	71.8	52.6	74.6	78.4	—
			Amino Acids†			
Arginine	4.3	4.6	5.4	4.3	4.7	3.6
Histidine	2.5	2.7	3.0	2.7	2.8	1.8
Lysine‡	2.8	2.8	3.2	3.7	4.2	2.0—2.2
Tyrosine	3.3	3.3	3.3	3.5	4.1	3.0
Tryptophan	0.8	0.9	1.0	1.0	0.9	1.0
Phenylalanine	4.6	4.9	4.7	4.7	4.6	4.9
Cystine	3.0	3.1	3.0	2.5	2.6	—
Methionine	1.9	2.3	2.3	2.2	2.2	1.6
Threonine	2.4	3.1	2.9	3.1	3.4	2.7
Leucine	4.8	4.9	5.3	5.3	5.3	6.6
Isoleucine	3.9	4.3	4.6	4.4	4.5	4.0
Valine	3.7	4.7	4.5	4.4	4.2	4.4
Glutamic acid	29	30	33	33	26	33
Glycine	3.1	3.0	3.0	3.3	2.8	3.1
Alanine	3.0	3.0	3.4	3.1	3.2	2.6

*Protein = N × 6.25.
†Calculated in grams per 16 gm. nitrogen.
‡Mean of duplicate determinations.

in air. The starch was then separated from the proteins by the ptyalin digestion method (8). This procedure increased the protein (N × 6.25) content of the air-dried material from approximately 15 to 20 per cent to 70 to 80 per cent except in the case of the whole wheat samples in which the protein was only raised from 18 to 53 per cent. The starch-reduced crumb was then hydrolyzed under reflux with a large excess of 6 N hydrochloric acid. All amino acids, except tryptophan, were estimated by paper chromatography (8). Because of the primary importance of lysine for the nutritive evaluation of bread, the analyses for this amino acid were carried out in duplicate, although only on a single hydrolysate. Tryptophan was determined by a modification of the Folin-Lugg procedure on sodium hydroxide hydrolysates (9).

Results and Discussion

The analytical results are given in Table I. Actually, from the nutritionist's point of view, the only figure of practical importance is that of lysine. It should be noted that white bread made with 4 per cent nonfat milk solids should contain 2.7 to 2.8 gm. lysine per 16 gm. nitrogen (4, 10).

A number of suggestions have been made for calculating the nutritive value of proteins during the past ten years (8). One, which has been shown to be particularly applicable to foods derived largely from wheat flour, is the concept of "complete" protein. The calculation of the quantity of "complete" protein consumed by an animal has been shown to be superior as an index of nutritional value to the calculation of the quantity of crude or total protein eaten (4). When lysine is the primary amino acid deficiency and when there is no closely limiting second amino acid, as is the case of wheat products, the percentage of "complete" protein in a food may be calculated on the assumption that "complete" protein contains 5.3 gm. lysine for 16 gm. nitrogen (4):

$$\text{per cent "complete" protein} = \frac{\text{gm. lysine per 16 gm. nitrogen}}{5.3} \times 100$$

The quantities of "complete" protein as a percentage of the total protein and as the percentage of fresh bread are given in Table 2. The calculated percentage improvement of the various breads compared with white flour is also given. Thus white bread with approximately 4 per cent nonfat dry milk solids (6) is 30 per cent better than white flour, and so forth. The amount of "complete" protein in a wheat product may be expressed:

$$C = q \frac{L}{5.3}$$

where C = "complete" protein; q = crude protein (N × 6.25); and L = gm. lysine per 16 gm. nitrogen in the crude protein. The last column in Table 2 gives the absolute quantities of "complete" protein in the various breads.

TABLE 2 **Calculated nutritive value of various breads**

TYPE OF BREAD	PROTEIN*			IMPROVEMENT OVER WHITE FLOUR	C= q L / 5.3
	Air-dried crumb	Fresh bread	"Complete"		
	%	%	%	%	*gm.*
White bread (pooled)	15.0†	9.5†	52†	30	4.9†
Wholewheat bread (pooled)	17.6†	11.1†	60	50	6.7
	16.1‡	10.1‡			6.1‡
Cracked wheat bread (individual)	16.1†	10.2†	70	75	7.1
Milk-protein enriched bread (individual)	21.5†	13.2†	80	100	10.6
Wheat flour	13.2†	—	40	—	—

*The convention of using various factors to convert nitrogen into protein may have some value when applied to individual foods, such as milk, meat, and so on, but is obviously quite misleading when applied to foods of mixed origin, such as bread. Thus the factor used to convert nitrogen into protein for milk is 6.38; for lactalbumen, 6.66; and for wheat gluten, 5.7. The use of 5.7 as the factor for wheat foods containing appreciable amounts of milk proteins will give an erroneous impression of the relative amount of protein present when compared with wheat foods containing but little milk proteins.

†Protein = N × 6.25.

‡Protein = N × 5.7.

As mentioned in the introduction, much of the evidence pertaining to the inferior quality of the proteins in bread, especially white bread, appears to have been based on feeding experiments with wheat gluten. As wheat gluten contains approximately 1.5 gm. lysine per 16 gm. nitrogen or 28 per cent "complete" protein, it is obvious that conclusions based on such experiments should not be used to interpret the nutritive value of commercial breads.

Summary

The amino acid composition of twenty-five pooled samples of commercial white bread, thirty-one pooled samples of whole wheat bread, and of two special formula breads has been estimated.

Because lysine is the limiting essential amino acid, it is possible to calculate the quantity of "complete" protein and thus arrive at the relative nutritive value of each bread. The analyses indicate the following quantities of "complete" protein as per cent of the total protein: wheat flour, 40 per cent; white bread, 52 per cent; whole wheat, 60 per cent; special formula cracked-wheat bread, 70 per cent; and lactalbumen-milk-soybean bread, 80 per cent.

Much of the evidence pertaining to the inferior quality of the proteins in bread, especially white bread, appears to have been based on experiments with wheat flour or gluten. The amino acid analyses reported here show that the proteins of white and whole wheat breads are 30 and 50 per cent better than wheat flour proteins. Further, there are available commercial breads which contain 75 to 100 per cent more "complete" protein than wheat flour.

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The Parental Influence

The UNESCO *Courier* reports that an investigation in Sweden showed that children spend on the average 20 cents per head per day on sweets. One explanation offered is that young children are quick to please their parents by learning to like sweets which are continually presented to them—as gifts, rewards, bribes, and treats.

What Does Top Management Expect?[1]

GEORGE E. CARTMILL
Director, Harper Hospital, Detroit

Most policy decisions come as a result of "staff functions" well performed. It is in this phase of your responsibilities that you exercise more control of your own progress than in any other.

I HAVE SAID before (1) that administration expects "a food service executive, prepared by formal education with the tools of her trade. These include a knowledge of basic nutrition, techniques of food preparation, use of equipment, and a realization that only by working through a variety of kinds of people will she produce her end product." I felt then—and still feel—that faulty communication techniques lead to much misunderstanding.

Top Management Defined

What is "top management," and what does it do?

Peter Drucker in *The Practice of Management* (2) refers to the three jobs of management as: managing a business, managing managers, and managing workers and work. He says each of these can be studied separately, but in its daily work, management cannot separate them. Any management decision always affects all three jobs and must take all three into account.

In a sense, every dietitian is top management. In the eyes of somebody in your organization, you are the top. Mostly top management provides proper environment, tools, and materials. It sets policies for guidance. It checks on results. But, it remains somewhat aloof from operations until the operating heads show signs of failure.

Top management implies decisions. The comforts of a well organized routine are seldom felt by top management. Top management's decisions are based on the studied opinions of numbers of people. When we speak, therefore, of what top management expects, we are getting into a realm which can by no means be exhausted in a short space. Perhaps the best we can do is to point out a few of these expectations which may be overlooked.

Picture your organization as a pyramid. At the top of the pyramid is the president, or the chairman of the board, or the hospital director—top management. Each layer of your pyramid gets a little wider and at the bottom you have a great number of workers who actually are performing tasks. When combined, these efforts produce the objectives for which your enterprise exists.

If there is a "boss" for top management, it is this thing called "the enterprise." Top management usually has no one supervising it in the usual sense. Top management believes that its particular enterprise is justified, that it is good for society or a segment of society. The only real policy which governs the conduct of top management is that the enterprise shall be kept alive as economically as possible as long as it performs real service for society.

This was formerly considered to be a relatively simple task. Top management made decisions on virtually every level—or thought it did. Tycoons of large industries usually came up through the ranks. By the time they arrived at the top of the pyramid, they could do almost every job in the organization. This was possible because technology was a relatively limited thing. We are told, for example, that Henry Ford throughout the greater part of his life probably could have taken his place anywhere along his assembly line and done a creditable job.

To a greater or less degree, the captains of industry about the turn of the century were noted for this trait. They came up through the ranks and technically were very highly qualified. Some of them may have had a natural flair for management, but many did not. Their organizations were very much an image of themselves; they stayed in control of their huge empires because they were willing to risk the whole empire on their own personal judgments.

Today top management faces quite a different picture. Many aspects of the business, large or small, are technically beyond the grasp of the top manager. Whole specialties have grown up around the problems of labor relations, production scheduling, technologic advances, and even management techniques. We are told, in connection with the example of Mr.

[1]Presented at the 40th Annual Meeting of The American Dietetic Association in Miami, on October 22, 1957.

Ford, that under his management techniques it is highly improbable that Ford Motor Company made a profit any time during the ten to fifteen years preceding World War II. The fall and rise of that one organization will some day be one of the most fascinating stories of American economy. At any rate, the top man today finds himself trying to be the top stone on two different pyramids—one having to do with production, the other having to do with the management of the tools and people through whom his first pyramid operates. At each level these people may know more about a specific small part of the end product than does the top manager himself.

This has given rise to what are commonly called "line" and "staff" functions. If you visualize these as two separate pyramids reporting to the top management, the functions of *staff* may be thought of as philosophical aspects of management, while *line* is the production part of the organization. In other words, staff *dreams*, and line *does*.

Top management must perform in both of these functions—must be able to decide in both situations. While in a large corporation you may find complete separation of the two right up to top management, I suspect that most dietitians are required to perform both functions. Your top management gathers *through you* the kinds of information on which sound decisions can be based, and then applies it *through you* as a part of an efficient line organization.

The Dietitian's Staff Responsibilities

What about this "staff" half of your life? This is the thinking—the dreaming, if you please—side of your responsibility. The most important things in this side are ideas. Somehow, no matter how crowded your working life, you must take time out for ideas. And these ideas must not only be those applicable in your present situation, but they must be the fanciful kind in which you forget that you're tied by practicalities and try to figure out *the* best way of accomplishing your mission.

For a moment, imagine yourself "just thinking." You haven't really had any directives from top management. This is just the "staff side" of your personality sitting down to plan. You have a gnawing conviction which has been growing more and more acute that your dishwashing set-up needs change. The present layout is inconvenient from several ways and, although the equipment is by no means worn out, you have the feeling that new equipment which lends itself to a new work flow would pay.

The first thing facing you is whether your operation can stand junking equipment in which there is useful life. You can get the kind of machine which will enable you to drop at least one employee—and possibly two—so you'll save X dollars in two years. Some quick figuring shows that if this is true, perhaps you can afford to throw away, or to sell for salvage, the useful equipment you have.

What about the amount of cash available to tie up at this time?

This is the kind of staff work inherent in your job. This is the kind of analytical activity expected by your top management. Top management may, when you present your report, ask many of the same questions you have asked yourself. Gradually these will become fewer and fewer in connection with your recommendations as you prove that they are thoroughly thought out before you take them to your top management.

Information for Top Management

This whole result I classify under the broad category of information, and it is perhaps the most important need of top management.

Top management expects good, adequate, accurate, well prepared information. Without it, top management cannot make good decisions. Without good decisions, the business doesn't last very long. Don't underrate your personal responsibility for information.

Top management expects imagination. There's an old saw that says we shouldn't change simply for the sake of changing. There are times when I think this is wrong. I think we all get too complacent. The fact that something has worked for twenty years doesn't mean that it wouldn't be better if it were changed. Periodically, top management expects you to sit back and think about possible change. Dream awhile. Why have frozen foods become so popular? Was it because somebody found frozen elephant meat in Northern Siberia? Or did some enterprising seller of freezing mechanisms set out to create a market for himself when he found that he could quick freeze food? Whatever the reason, somebody took time out to dream, to gather information, and eventually to present it to some top management, who found the capital, made the investment, and it paid off.

How much of this dreaming do you do? What an opportunity you have in food service! Who do you suppose ever dreamed up the cream-cheese-and-olive-nut sandwich—or for that matter, most of the recipes you use every day? Imagination has *certainly* played a large part in the successful advance of your profession.

Objectivity is another trait about which we hear a great deal but may not do much. This is a trait which is as necessary in the staff organization as it is in the line. It involves in the decision-making process a complete divorce of temperament and personality from the facts of the situation. In the hospital, this is the trait which allows you, unemotionally, to look at the complaints of the head nurses and finally decide on that which is best for all concerned. Or perhaps it allows you cheerfully to cook with gas

in Texas when you pine for the incomparable electricity you had in Spokane. When your top management can rely on your objectivity, you're well on the way to success.

Keeping Up to Date

Who keeps you up to date in your field? Does your top management have to prescribe your reading? Suppose your convention were held in Grand Island, Nebraska, instead of Miami. Would you be there? One of the integral attributes of a profession is its thirst after knowledge and its ability and desire to satisfy that thirst. Top management takes this trait of a profession into account when it goes looking for its food managers. One thing it assumes about dietitians is that they will, of their own volition, keep abreast of trends in equipment, management, and organization in the field. They will digest these things and make them known to top management.

And finally, how do you get all these things across to your top management? Do you think the ability to write a short, lucid report is something secondary to your primary function? Can you talk in the presence of authority? Can you so prepare yourself that when questions come thick and fast concerning your recommendations, you can answer them in the same fashion? Do you resent someone's questioning your recommendations? Top management expects easy communication or—rather—*ease of* communication. Top management does not expect to be put on the defensive, but neither does it expect to have you on the defensive. There should be an ease of communication both ways. No one can guarantee that your particular top management is doing its part, but before you are critical of it, be certain that you are doing your part.

Summary

What does top management expect of you? We have attempted to point out that most organizations today have a dual pyramid of organization. One is called the "line," which operates. The other is called the "staff," which examines, experiments, and analyzes, and in general finds answers usable by the line. We have not attempted to discuss line organization in this paper.

In the staff function, however, which may be the more difficult for many of us, there are certain attributes which top management expects. The staff person must be open minded; he must have a good imagination; he must be objective; he must be alert to change; he must, of his own volition, progress personally in his chosen field; and he must be able to communicate the results of his staff work. Top management eventually makes the decisions. Most policy decisions come as a result of the staff function well performed. Decisions as to changes in the line can come only after careful staff work. It is in the staff function that elements of trust, personal regard, the "over and beyond the call of duty" type of thing make themselves evident. It is in the staff function that you exercise more control of your own progress than in any other part of your work.

Arnold Mouish, Assistant Manager of the Veterans Administration Hospital in Newington, Connecticut, has described "completed staff work" in part as follows: "Completed staff work is the study of a problem and presentation of a solution to it in such a form that generally all that remains for the administrator to do is to indicate approval, disapproval, or modification of the completed action. . . Each department head is an expert in his field and should work out the details of his program. . . Resist the impulse to ask higher echelon what to do. An administrator expects: advice on what ought to be done; answers, not questions; completed staff work presented after a thorough study of the problem. . . Completed staff work does not preclude discussion or submission of rough drafts. These drafts should be fully developed, however, and should not be used as an excuse for shifting the burden of formulating action to others. A final test for the completeness of completed staff work is the question: If I were the administrator, would I be willing to sign the paper I have prepared and stake my reputation on its being right?"

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Do You Still Say "Oleo"?

At the request of Napoleon III, a French chemist, Hippolyte Mege-Mourie, developed the first margarine in 1870 by pressing out the softer components of beef fat, called "oleo oil." These components were churned with milk and yellow coloring, and the resulting product resembled butter in consistency.

For many years, however, most American margarine has been made of all-vegetable fat—chiefly soybean and cottonseed oil. Thus the terms "oleo" and "oleomargarine" are actually inaccurate, and the correct name is now "margarine." Nevertheless, fourteen states still require the label "oleomargarine," and manufacturers generally—although reluctantly—use this name on their packages which go into interstate commerce. The industry hopes that eventually the correct term, "margarine," will be legally accepted everywhere.—*Clara Gebhard Snyder, National Association of Margarine Manufacturers, Washington, D.C.*

Do You Irritate Others When You Listen?

A. CONRAD POSZ, Ph.D.

Labor and Industrial Relations Center and Department of Communication Skills, Michigan State University, East Lansing

What constitute "good listening manners"? Here is a report of sixty dietitians' reactions to their administrators' or supervisors' listening habits. Perhaps you, in your role of supervisor, can take a page from these findings to improve your manner of listening when employees wish to discuss problems with you.

DIETITIANS RECOGNIZE the important role that listening plays in their work. Dr. Donald Bird, after surveying 110 dietitians in hospitals in 47 states, Hawaii, and the District of Columbia, reported these results (1): (a) The members of this group estimated that they spend almost three times as much time listening in their professional work as they do reading. (b) In addition, a large majority of this group ranked listening as more important to a dietitian than reading, writing, or speaking.

Since you, as a dietitian, probably also recognize the importance of good listening on your job, you are undoubtedly interested in learning how to improve your listening ability. You probably have done some reading to find out how to listen better. If so, you have doubtless found, in addition to suggestions about how to understand what you hear, lists of "do's" and "don'ts" about other listening behavior, such as: "Don't interrupt a person while he is talking"; "Don't finish sentences for people"; "Look at the person while he is talking"; and "Don't doodle while the person is talking."

These authoritative lists continue on and on. But, have you ever stopped to wonder who decided that such and such behavior was irritating to the speaker? Are these lists based on research? Probably not. Little or no research has been done to validate these assumptions about the amount of irritation caused by listening behavior.

The Questionnaire

Bothered by this lack of evidence, Dr. Clyde Dow, Department of Communication Skills, Michigan State University, and the author began some research in this area. Our objective has been to answer the question: "What listening behavior *actually* irritates the person speaking?" Our concern has been primarily with the communication situation that exists in the face-to-face contact of an interview or conference.

As part of our research, several questionnaires on listening behavior have been developed. The most recent is a sixty-item questionnaire, "Listening Habits of Supervisors That Irritate Me."

In April of this year, this questionnaire was administered to sixty Michigan dietitians attending the Michigan Dietetic Association meeting, which took the form of a conference on communications at Michigan State University. The results of this survey should be of interest to any dietitian or administrator wishing to improve his or her ability to listen.

Each dietitian was asked to mark the degree of irritation for each item, according to the following scale:

0 . . . has never happened
1 . . . not at all irritating
2 . . . very little irritation
3 . . . some irritation
4 . . . very much irritation
5 . . . extreme irritation

Directions on the questionnaire explained: "If you have never experienced the particular situation or observed the habit, please check '0.'" Attention was then called to the fact that "0" and "1" differed radically, in that marking "1" meant that the person had observed the habit but was not irritated by it.

The results shed some light on several aspects of listening behavior: (a) which habits these dietitians identified as being most common among their administrators or supervisors; (b) which habits the dietitians reported as being most irritating; and (c) which habits were only slightly irritating.

As you read some of the items, you may find yourself thinking that the behavior is not "listening"

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but is really "speaking" behavior. The explanation is that the research is designed to discover irritations that result in those conferences where the administrator or supervisor is *primarily* in the role of a listener, although he may occasionally ask questions, interrupt with comments, finish sentences, or suggest solutions.

Most Common Habits

Sixteen of the sixty habits on the questionnaire were listed by at least 50 per cent of the group as being those of their administrators or supervisors. These sixteen habits seem to be fairly common, ranging from 50 to 67 per cent. They are listed below in order of their frequency.

1. He interrupts me when I talk.
2. He asks questions that demand agreement with him; for example, he makes a statement and then says, "Don't you think so?" or "Don't you agree?"
3. Whenever I make a suggestion, he always throws cold water on it. I've quit trying to give him suggestions.
4. He is always rushed for time.
5. He gives me the feeling that I'm wasting his time.
6. He acts as if he is just waiting for me to get through talking so he can interject something of his own.
7. He puts me on the defensive when I ask a question or make a suggestion about improving things.
8. He is always trying to get ahead of my story—and guess what my point is.
9. He asks questions as if he doubted everything I say.
10. He has such a poker face and manner that I never know whether he's listening or whether he understands me.
11. He rephrases what I say as if I hadn't said it right, "Oh, do you mean . . .?"
12. He always gets me off the subject with his questions and comments.
13. He says he has to go to another meeting.
14. He fails to get down to the basis of the argument or problem.
15. He frequently looks at his watch or the clock while I am talking.
16. He passes the buck on problems.

The above list does not indicate any degree of irritation, but is merely an indication of the frequency of occurrence.

What about you? Do you possess these common habits? All of them were irritating to some degree.

Most Irritating Habits

Listed below are the habits the dietitians indicated as being most irritating. The items are arranged according to the percentage of the group who marked the item as either "extreme irritation" or "very much irritation." Number one received the highest percentage (59 per cent); all received 30 per cent or more.

1. Occasionally he asks a question about what I have just told him and shows that he wasn't listening. For example, just after I finish telling him about a problem, he might then ask, "Let's see, what was the problem you wanted to talk to me about?"
2. He passes the buck on problems.
3. He says something and then denies it at the next meeting.
4. He argues with everything I say—even before I have a chance to state my case.
5. He treats me like a child.
6. He asks questions as if he doubted everything I say.
7. He gives me the feeling that I'm wasting his time.
8. He rephrases what I say in such a way that he puts words into my mouth that I didn't mean.
9. He walks away when I am talking.
10. He acts as if he knows it all.
11. He acts as if I don't know what I'm talking about.
12. He acts as if he is doing me a favor in seeing me.
13. Whenever I make a suggestion, he always throws cold water on it. I've quit trying to give him suggestions.
14. He pushes me into a corner, and as a result makes me feel like a fool.
15. He fails to get down to the basis of the argument or problem.
16. He acts as if he is just waiting for me to get through talking so he can interject something of his own.

Comparing this list of most irritating habits with the first list of most common habits, you will notice that items 2, 6, 7, 13, 15, and 16 are not only very irritating habits, but also show up on the list of most common habits. In addition, however, items 3, 4, 5, 8, 11, 12, and 14, although not on the list of most common habits, were listed by over one-third of the group as being habits of their administrators or supervisors.

These data might cause a person to wonder what kind of administrators or supervisors these dietitians have. Evidently many of them could profit from training in communications or human relations.

Slightly Irritating Habits

There were some surprising items in the questionnaire. Certain habits that might be thought to be extremely irritating turned out to be irritating to

only a few. Less than 20 per cent of the dietitians marked the following items as being "very much irritation" or "extreme irritation":

(1) All the time I talk to him, he looks out the window as if watching something out there.

(2) When I'm talking, he finishes my sentences.

(3) He rummages through papers on his desk or through his desk drawers, instead of listening.

(4) He closes his eyes, rests his head on his hands, as if resting.

(5) If several people are in the room, he looks at someone other than the person speaking.

(6) He paces back and forth *as if impatient* with the way I am telling my story.

(7) He blows smoke in my face.

(8) He sits too close to me.

Many of these eight items are suggested rather frequently in lists of "do's" and "don'ts" about how to listen. However, this group indicated that few of them were irritated to any considerable degree by any of them. Now this author would not necessarily recommend that you develop any of these habits, but the data reveal that certain habits are considerably less important than others.

Conclusion

Good listening habits are not solely those which will help you to understand the person who is speaking. Improved listening habits can also mean improved relations with others, more cooperation from others, reduced friction and tension, and better work from people you work with or supervise.

Conversely, poor listening habits can antagonize people, lose friends for you, lead people to lose respect for you, and lead people to sabotage your efforts because they have been irritated.

As a dietitian, you frequently find yourself in situations where you desire to assume the role of a listener in a conference or meeting. You may desire to help a person solve a personal problem; you may want to learn the facts in a grievance situation; you may want to elicit suggestions on menus, working schedules, specific routines, and so on. Obviously, you will be hampered in your attempts to achieve any of these or similar goals if your listening habits tend to irritate others.

Listening can make a difference on your job. It would be worth your while to identify which of the common irritating habits you have. Their consequent elimination could result in improved human relations between you and the people with whom you work.

Reference

(1) BIRD, D. E.: This is your listening life. J. Am. Dietet. A. 32: 534, 1956.

Continuing Education in Administration in San Francisco

In the spring of 1957, a Workshop on Continuing Education was conducted for San Francisco-Bay Area dietitians. At that time, one of the participants commented on the eagerness of dietitians to obtain more information on supervision and mentioned the possibility of organizing a class for our own group to develop this topic. The promotion of a course called "Introduction to Organization and Management" thus became a project of the Bay Area's Education Section this year.

Arrangements were made with the University of California Extension Division to offer such a course this spring. University credit could be earned—one unit for 15 hr. of instruction, or seven meetings of approximately 2 hr. 10 min. each. In announcing the course, the flyer explained that it would be "an introductory course designed to provide students with broad understanding of organizational environment and administrative principles. Formal and informal organizational structure and their relationships will be discussed along with behavior standards, communications, and other theoretical considerations of organization and administration." The course began on February 3, with Tore Tjersland, Acting Assistant Professor of Business Administration at the University of California, Berkeley, as our instructor. For our text, we used *The Administrator—Cases on Human Relations in Business* by John D. Glover and Ralph M. Hower (Homewood, Illinois: Richard D. Irwin, Inc., 1957). Our interest in the class was unquestionably strengthened by the use of the case study method of discussing problems. By the second meeting we realized that we could not learn a great deal about administrative practices in 15 hr. of instruction. Consequently, we then investigated the possibility of continuing our classes. The University Extension again cooperated, and 30 hr. additional instruction were given in fourteen extra meetings (with two additional units of University credit). Briefly, this phase included such topics as continued coverage of administrative practices and readings in psychology and anthropology.

The course as given was tailored specifically to the needs of dietitians in the administrative areas, and it is our hope that perhaps our experience may spark other groups to promote similar programs. In areas where university or college cooperation is available, it should be a relatively easy program to plan.—*Margaret Warde, Chief Dietitian, Alameda Hospital, Alameda, California.*

II. Sources of Waste

Plate Waste in a School Lunch[1]

MARY BROWN PATTON, Ph.D., ALICE FORSYTHE CARVER, and FERN ENSMINGER HUNT

Ohio Agricultural Experiment Station, Columbus

AN EARLIER paper (1) reported on the over-all plate waste from Type A school lunches in one Ohio school at intervals during one year. After the over-all plate waste was determined, questions arose such as: What is the source of the waste? Is it related to particular foods, familiarity of the food, method of preparation, form in which it is served, or to something else?

Observations revealed that certain children participating in the school lunch program in this school often left a considerable portion of their food. The food they returned could substantially increase the amount of waste for their grade and the school. Furthermore, a particular food which was unpopular among a majority of children was likely to constitute the major part of the waste at one or all grade levels on the day it was served.

In the study reported in this paper, various approaches were considered in order to isolate the factors contributing to return of food. A survey made among the children and their parents had shown that these children ate few vegetables, particularly green and yellow ones. As part of a nutrition education program, therefore, green and yellow vegetables were purchased and served in the school lunch in order to study their acceptance. These vegetables were provided at no cost to the school, making a greater variety possible. Since the children were unfamiliar with some of them, a good opportunity was afforded for observing acceptance. Waste was studied from two other food groups—protein-rich foods and fruits and desserts—during this same period.

Procedure

Collection of plate waste was similar to that described previously (1). In this study, however, waste from the particular food under observation was weighed separately from that of the remaining items on the day's menu for each of the eight grades. From these data the following calculations were made:

(a) $\frac{\text{Weight of item returned}}{\text{Weight of that item served}} \times 100 = \text{percentage of item wasted}$

(b) $\frac{\text{Weight of item returned}}{\text{Weight of all items returned}} \times 100 = \text{percentage of total waste contributed by item}$

(c) $\frac{\text{Weight of item returned}}{\text{Number lunches served}} \div 100 = \text{waste per 100 lunches}$

Sizes of servings were adjusted to the needs and capacity of children, i.e., smaller servings were given to first and second graders than to upper classmen. Also, new or unfamiliar foods were introduced in small servings. Average percentages of plate waste are reported for those foods served more than once. Food returned as a percentage of the total amount of an item served was used as a criterion of acceptance.

Results and Discussion

VEGETABLES

Vegetables for which percentage returned was determined are listed in Table 1. These items have been divided into three groups—frozen, canned, and raw. The cooked vegetables, both canned and frozen, were served buttered, except for scalloped corn and candied sweet potatoes.

Percentages of canned wax and green beans returned were practically equal and were the lowest among all vegetables—canned, frozen, or raw; the percentages of waste for all other vegetables, including frozen green beans, were three or more times as high. Among the frozen vegetables, percentage of waste was highest for peas. According to percentage of waste, acceptance of canned peas was only slightly better. Waste from canned peas served with fresh cooked carrots was only about half as much as from canned peas alone. Among the canned vegetables, only sweet potatoes exceeded peas in the amount returned.

A mixture of canned whole kernel corn and green beans was liked better than was frozen corn with

[1]Contribution No. 22, Subproject 2, of the North Central Regional Cooperative Project NC-5, Nutritional Status and Dietary Needs of Population Groups. Ohio Agricultural Experiment Station, Wooster, Journal article No. 87—57, Project No. Hatch 61. Received for publication December 23, 1957.

TABLE 1 Percentage of plate waste from various classes of foods

FOOD	PLATE WASTE
Vegetables	
FROZEN	%
Green beans	10.3
Broccoli	15.0
Corn and Lima beans	16.2
Peas	21.6
Average	15.8
CANNED	
Green beans	3.0
Wax beans	3.1
Corn and green beans	10.2
Peas with fresh carrots	11.9
Corn	13.5
Peas	19.6
Sweet potato	20.5
Average	10.9
RAW	
Carrot	11.0
Leaf lettuce	11.9
Cabbage	14.9
Tossed salad	15.8
Rutabaga	16.0
Mixed, in gelatin	24.2
Average	14.1
Protein-Rich Foods	
MEAT, FISH, OR EGG	
Fish sticks	0.8
Barbecued pork	4.1
Deviled egg	5.4
Pork lunch meat	6.8
Roast pork	21.0
Average	7.4
MEAT OR FISH IN COMBINATION	
Chicken loaf	9.1
Tuna salad	17.2
Chicken with rice	18.1
Chicken potpie	18.6
Average	15.8
Fruit and Fruit Desserts	
FRUIT OR JUICE	
Orange juice	0
Mixed fresh and canned	7.8
Grapefruit sections	10.8
Apricots, dried uncooked	11.5
Average	8.9
FRUIT COMBINATIONS	
Strawberry shortcake	2.9
Cherry pie	8.9
Fruit, in gelatin	11.0
Pineapple cake	14.2
Apple crisp	14.9
Average	10.4

Lima beans, as evidenced by percentage of plate waste. More waste was obtained from scalloped whole kernel corn than from a mixture of canned corn and green beans, but waste from scalloped corn was less than that collected when frozen corn and Lima beans were served.

The percentages of waste were similar from frozen broccoli and the mixture of frozen corn and baby Lima beans. The mean plate waste for broccoli was 15 per cent, with a range from 12.5 to 18.2. Frozen broccoli was one of the vegetables supplied free. Few of the children had tasted it before. In general, frozen vegetables were less well liked than were canned vegetables—15.8 and 10.9 per cent plate waste, respectively.

Of the five raw vegetables studied percentages of plaste waste were less for raw carrot sticks and leaf lettuce than for cabbage, rutabaga, and tossed salad. The percentage of waste from the cabbage ranged from 8.4 to 21.4 with a mean of 14.9. The highest percentage of waste for this vegetable occurred on a day when no exchange of food among the children was allowed.

Of the raw vegetables served, a molded salad made of chopped carrots, cabage, and celery in lemon-flavored gelatin was least well liked according to amount wasted by the children (24.2 per cent). Mean percentages of plate waste for the other raw vegetables served ranged from 11.0 to 16.0, with a mean for all of 14.1. The mean return for all vegetables, whether canned, frozen, or raw, was 13.9 per cent.

Plate waste for another group of vegetables is presented in pounds per 100 lunches in Table 2. For potatoes, mashed or buttered, waste amounted to about 2 lb.; for potato salad, 5¼ lb. Potato waste appears high, but both buttered and mashed potatoes were well liked. The children often obtained liberal second servings. Uneaten portions of these additional servings probably contributed substantially to the total plate waste for potatoes. In comparing the amount of waste from buttered or mashed potatoes with that from potato salad, the method of preparation appeared to be a factor in acceptance.

Plate waste for buttered canned spinach was almost as much as for potato salad. By comparison, waste for raw cabbage and buttered frozen Brussels sprouts was small. All of the figures in Table 2, except for canned peas, were obtained at times when no food exchange among the children was permitted.

PROTEIN-RICH FOODS

It is common to find that children in a school like certain foods better than others. In the school in which this study was made, wieners, hamburger patties, and ground bologna were favorite protein-rich foods. Since the return from these items was negligible, the leftovers were not weighed.

Plate waste was weighed for nine other protein-rich foods (Table 1), five served as meat alone and four, in combination with other ingredients. The fish sticks were furnished at no cost to the school through the experimental program. The servings were comparatively small, although they met the requirements for protein in a Type A lunch. Al-

though fish sticks had not been served previously, plate waste was negligible.

The pork was donated to the school from government surplus commodities. Plate waste from this item was higher than for the other protein-rich foods. Several reasons may be advanced for this comparatively poor acceptance. The flavor was different from that of fresh pork to which many of the children were accustomed. No food exchange was permitted among the children, and on this day peanut butter sandwiches and jelly sandwiches were offered *ad libitum* to the children in grades 4 through 8. These sandwiches were popular and were eaten in relatively large quantities in preference to the roast pork.

Preparing and serving pork lunch meat in slightly different ways, i.e., hot, cold, and barbecued, had little or no apparent effect on plate waste. Plate waste from barbecued pork sandwich filling appears in Table 1 as only 4.1 per cent, but this figure is undoubtedly low. The pork filling returned was removed from the uneaten portion of the bun for weighing, but some of the meat juice and sauce of the meat waste had been absorbed by the bun.

The children preferred meat served alone rather than in preparations with other foods as indicated by the mean percentage of plate waste, 7.4 and 15.8, respectively. Chicken, whether served baked with rice or in potpie with potatoes and pastry crust, was equally well accepted. The plate waste from chicken loaf was only about half as great as that from the two other forms in which chicken was served.

Plate waste from another group of protein-rich foods studied on the basis of pounds per 100 lunches served is shown in Table 2. Amounts returned of cottage cheese, boiled beef, and meat loaf were less than those from combination dishes—creamed chicken on biscuit, beef stew, and whipped cheese sandwiches. Waste from creamed chicken on biscuits was greater in May than in October of the same school year. Whether this was due to season or to other factors is not known.

The whipped cheese sandwich filling was a combination of mayonnaise, processed Cheddar, and an aged Cheddar cheese. Most of the children did not like the strong-flavored Cheddar cheese and because of its presence rejected the sandwich.

DESSERTS

Fruits were served alone and combined either with gelatin or pastry. The kinds studied are shown in Tables 1 and 2. No waste of reconstituted canned orange juice was observed, but this may have been due to "swapping." The orange juice was a government surplus commodity and, in this school, had been properly stored under refrigeration to preserve its flavor and nutrient content. High acceptance was undoubtedly related to the good flavor.

TABLE 2 Plate waste by weight for vegetables, protein-rich foods, and desserts

FOOD	PLATE WASTE
Vegetables	
	lb./100 lunches
Cabbage, raw	1.15
Brussels sprouts, buttered	1.30
Potatoes	
Mashed	1.88
Buttered	2.12
Peas, buttered	2.31
Sweet potatoes, candied	2.55
Spinach, buttered	4.72
Potato salad	5.26
Average	2.66
Protein-Rich Foods	
Cottage cheese	1.56
Beef stew meat	1.58
Meat loaf	1.95
Creamed chicken on biscuit*	2.83
Whipped cheese sandwich	3.27
Creamed chicken on biscuit†	4.22
Beef stew	4.50
Average	2.84
Desserts	
Chocolate cake	0.28
Cake with strawberry whip	0.84
Gingerbread with whipped cream	1.71
Fruit in gelatin	4.31
Average	1.79

*Data collected in October.
†Data collected in May.

Other fruits in order of popularity, as indicated by percentage of plate waste, were: mixed fresh and canned fruit, grapefruit sections, and uncooked dried apricots. Waste was collected three times from grapefruit sections canned in heavy sirup, and the percentage of waste ranged from 5.3 to 17.0. Grades 1 to 3, inclusive, were responsible for half of this waste.

Among the four desserts—apple crisp, pineapple upside-down cake, cherry pie, and strawberry shortcake—the least waste occurred with strawberry shortcake (2.9 per cent). Half of the total waste for these four desserts was contributed by grades 1 and 2. Fruits tended to be returned in slightly smaller percentages when served alone than when served in gelatin or in pastry combinations (8.9, 11.0, and 10.4, respectively).

The plate waste from gelatin desserts varied with the fruit incorporated in the mixture. Calculated on the basis of pounds returned per 100 lunches served, waste from fruit gelatin containing fruit, such as bananas, oranges, or peaches, was 2.52 lb. When cranberry sauce, a government surplus item, was combined with the fruit gelatin, the waste amounted to 4.31 lb. Cranberry sauce was not popular among the children in this school, even when attempts were made to mask or dilute the characteristic flavor.

TABLE 3 Percentage plate waste from four food groups by grades

GRADE	PLATE WASTE			
	Fruits	Protein-rich foods	Vegetables	Desserts
	%	%	%	%
1	24	23	20	37
2	16	16	16	24
3	8	10	10	5
4	8	10	8	7
5	8	8	8	7
6	18	16	18	9
7	6	5	6	4
8	11	12	14	7

Plate waste from chocolate cake and cake with strawberry whip (Table 2) was comparable to that reported by Dreisbach and Handy (2), whereas for gingerbread with whipped cream waste was higher.

TOTAL PLATE WASTE

The preceding sections have dealt with waste from individual foods within three food groups—vegetables, protein-rich foods, and desserts. The mean percentage of waste for each of these groups as presented in Table 1 was: vegetables, 13.9; protein-rich foods, 10.4; and desserts, 9.4.

A second series of observations was made on the relation of plate waste to the amount served of each of these three food groups. The total weight of vegetables served on 26 days was 764 lb., and of that amount, 109 lb. (14.3 per cent) were returned. On 11 days, the weight of protein-rich food served was 376 lb., of which 43 lb. (11.4 per cent) were left on the plates. For desserts the total weight served on 11 days amounted to 433 lb., and 9.7 per cent was returned. Percentage plate waste was similar to that reported in the preceding paragraph.

A third series dealt with the relation of the waste from foods in each of these groups to the waste from all foods served. On this basis, vegetable waste was 34 per cent of the total; protein-rich food, 30 per cent; and dessert, 28 per cent.

The waste in pounds per 100 lunches for a number of foods is presented in Table 2. On this basis, the mean percentage waste for all vegetables was 2.66 lb.; for all protein-rich foods, 2.84 lb., and for all desserts, 1.79 lb.

Thus in each of these observations, the variations in plate waste among the three food groups—vegetables, protein-rich foods, and desserts—were small. Mean waste from vegetables, however, was always greater than that from desserts and was usually greater than that from protein-rich foods.

INFLUENCES ON PLATE WASTE

Percentages of food returned by each of the eight grades for four food groups—protein-rich foods, vegetables, fruits, and desserts—are shown in Table 3. Substantially higher percentages of food were returned by first and second graders than by those in the other grades. Plate waste was also somewhat high for grade 6. For example, the first two grades were responsible for 61 per cent of the dessert returned and about 40 per cent of the plate waste from fruits, from vegetables, and from protein-rich foods. Only 9 per cent of the dessert returned, but 16 to 18 per cent of the plate waste from fruits, vegetables, and protein-rich foods was attributed to the sixth grade. Together, these three grades contributed 70 per cent of the dessert returned and more than 50 per cent of the waste from each of the other three groups, fruits, vegetables, and protein-rich foods.

The largest or second largest amount of plate waste occurred among the first and second graders as often or more frequently than among the other six grades combined for both vegetables and protein-rich foods; twice as often for fruit; and four times as often for desserts.

Pressure of time to finish the noon meal in order to have more time to play and a child's misjudgment of his own capacity were often factors that determined whether he ate all the food served to him, particularly second servings. More plate waste occurred when "swapping" of food among the children was not permitted. All teachers ate with the children and were cooperative, but they varied in their policy of urging children to taste new foods and eat the foods served. This is reflected in the information reported.

COMPARISONS WITH OTHER STUDIES

Moser (3) mentioned that 55 to 59 of the 60 children interviewed liked and ate green beans, sweet potatoes, and canned fish; 50 to 54 of her group liked and ate grapefruit, cabbage, and lean pork. Augustine (4) reported no waste for orange juice and little waste on green beans, mashed potatoes, and creamed peas. The largest waste was from fruit salad and creamed chicken. In this study, plate waste for all foods except sweet potatoes (or similar foods) was lower than reported by Mirone *et al.* (5). The greatest contrast between Mirone's findings and those of this study was in plate waste figures for green beans—41.4 per cent and 3 per cent, respectively. Figures for grapefruit and English peas and carrots reported by Mirone *et al.* were about double those obtained in the present study for similar foods.

Summary

Whether percentages of plate waste were calculated on the basis of food group waste per total menu waste or food group waste per total quantity of food group served, the highest percentages occurred for vegetables and lowest, for desserts.

Children in grades 1 and 2 returned a larger percentage of desserts than of protein-rich foods and

vegetables whereas children in the other grades wasted a smaller proportion of dessert than of other foods. First, second, and sixth graders were responsible for more than half of the total food returned in the school lunches observed.

Meats served plain rather than in mixtures were preferred by the children. Canned vegetables were preferred to frozen products, and green beans were more popular than were most other vegetables or mixtures of vegetables.

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Squibb's Vitamin Advertisement Wins 1958 Award

Top winner among the twenty-five Annual Advertising Awards of *The Saturday Review*, announced in April, is an advertisement by E. R. Squibb and Son published as part of its campaign on personal health. The over-all campaign points out the dangers of self-medication, the wisdom of seeing one's doctor regularly, and the limits as well as the values of modern medicines. The specific advertisement which won the award pictures an apple in full color and says: "The best way to buy vitamins is in the original packages manufactured by nature—in fruits, vegetables, eggs, milk, meats, fish and whole-grain cereals. People who do not eat enough of these protective foods may appear to be well fed, but they cannot do their best work and get the most pleasure out of living, because of vitamin deficiencies. Vitamin capsules or tablets taken daily as a diet supplement help to make up such vitamin deficiencies.

"Look with distrust, however, on any suggestion of self-medication with vitamins to cure any condition. Do not run the risk of letting some serious disease go too long while you fool yourself by taking vitamins which may have nothing to do with your case.

"No vitamin can cure disease of the nerves, bones, blood, liver, kidneys, heart or digestive tract except in certain cases which only a doctor can recognize and treat . . . "

This advertisement was chosen as the "most distinguished public interest advertisement of the year" by thirty-three noted educators, editors, and advertising executives.

In explaining its interest in promoting better advertising, *The Saturday Review* comments: "In no other society is paid advertising used by private enterprise to the same extent to further social purposes not directly related to profit. Nor is advertising elsewhere used to the same extent to promote a better-informed and more sympathetic public understanding of the philosophy, ideas, policies, activities, and aims of the business hierarchy. . . . Because *The Saturday Review* has a continuing concern for the communications pattern in the United States through which popular attitudes, ideas, values, and actions are so decisively influenced, it has observed with profound interest the steady development of advertising as an engine of idea communication. It was from awareness of the impact of this powerful engine on the American people that *The Saturday Review* originally established its awards to recognize responsible use of advertising in the public interest. . . . It is the basic task of advertising's annual effort of 3,300 agencies, employing 45,000 talented people and spending some $10 billion, to stimulate consumption of the vast quantities of goods and services that flow from our productive economy. Advertising also today exerts an immeasurable influence on the value patterns and social attitudes of the American people. It is probably the single most powerful tastemaker in our society. Thus, the winning awards this year are not only the end-product of a unique complex of creative energies; they also reflect the growing awareness of many modern business leaders in the U.S. that a large corporation is a public trust and that private interest is best served which visibly serves the public interest as well."

Quality of Food Bought by Urban Families[1]

LOUISE KELLEY, Ph.D., MARGARET A. OHLSON Ph.D.,[2] GERALD G. QUACKENBUSH, and FELICITAS F. PIEDAD[3]

Departments of Foods and Nutrition and Agricultural Economics, Michigan State University, East Lansing

FORMULATION OF effective nutrition research and educational programs depends, in part, on a knowledge of how available food supplies are distributed among populations. At present there are many food consumption studies which describe food intakes of groups, but there is little information on how satisfactorily food needs of individual families within populations are met (1).

The Department of Agricultural Economics of Michigan State University maintains a continuous consumer marketing panel designed to reflect the dynamic character and changing food buying practices of an urban Michigan area of over 100,000 population (2). In 1953, when procedures for this panel were well established and near maximum reporting was attained, the Foods and Nutrition Department was given an opportunity to assist in investigating the nutritional implications of food purchases of this population sample.

A previous report of this investigation indicated that total food supplies of 146 families who provided complete food purchasing records for 1953 were sufficient to provide good nutrition for normal people. Nevertheless, distribution of food among individual families resulted in failure of some families to obtain 80 per cent or more of recommended quantities of one or more nutrients (1). There was a tendency for quantities of nutrients available to individual families to increase as meal costs increased (3). However, some families with an average meal cost of 40 cents or more during 1953 failed to meet the recommendations of the Food and Nutrition Board, while some with meal costs averaging 21 to 25 cents had food purchases that supplied 100 per cent or more of the recommendations.

This report relates meal cost and nutritional quality of food supplies to food purchasing patterns of families with varying quantities of nutrients.

Materials and Methods

The operation of the continuous marketing panel and its use as a source of data for a food consumption study have been described (1). Panel members provide periodic social and economic descriptions of their households. They keep weekly diaries of quantities of food purchased, preservation methods, costs for all food brought into their homes for family meals, and numbers of meals eaten at home by individual family members and their guests. Family food purchases are evaluated for calories and eight nutrients in edible food using, as far as possible, Department of Agriculture food value tables (4). Individual family nutritional allowances are estimated using as a standard the Recommended Dietary Allowances (5). Results are reported on the per-person and per-adult-unit basis, an adult unit being considered equivalent to a twenty-five-year-old man of average size requiring 3200 calories a day. All data are recorded and analyzed by IBM methods.

Results and Discussion

DESCRIPTION OF FAMILIES

Table 1 briefly describes the families studied. Data are presented for the 146 families. There were 294 adults and 163 children. The mean family size was 3.1 members. These families had a mean total yearly income of $5000 and a per-capita income of $1787. The families spent an average of 39 cents per meal for each adult equivalent represented.

The second part of this table separates the families on the basis of nutrients available. Thirty-eight families including 110 individuals had 100 per cent or more of recommended allowances available in their food purchases after non-edible waste

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[2]Present address: State University of Iowa, Iowa City.

[3]Present address: Institute of Nutrition, Manila, The Philippines.

TABLE 1 **Description of 146 families comprising population sample in this survey**

CHARACTERISTICS	NUMBER OF FAMILIES	MEAN FAMILY SIZE	NUMBER OF ADULTS	NUMBER OF CHILDREN*	MEAN ADULT-UNIT MEAL COST†	MEAN INCOME	
						Per family	Per capita
Recommended Nutrients Available‡							
		persons			*cents*		
100% or more of all nutrients	38	2.9	77	33	46	$5000	$1914
80% or more of all nutrients	68	3.5	137	99	38	5300	1701
Less than 80% of one or more nutrients	40	2.8	80	32	34	4500	1813
Meal Cost#							
20 cents or less	19	3.8	40	33	29	3800	1094
21—25 cents	41	3.6	83	66	33	4700	1386
26—30 cents	36	3.0	72	37	38	5400	1967
31—35 cents	23	2.8	44	21	43	5400	2067
36—40 cents	14	2.4	29	4	47	5200	2258
Over 40 cents	13	2.2	26	2	60	5400	2563

*Individuals under 21 years of age.
†Adult unit is equivalent to 3200 recommended calories.
‡Based on Recommended Dietary Allowances (5).
#Ranges refer to meal cost per person.

was subtracted. Sixty-eight families including 236 individuals had 80 per cent or more of recommended calories and nutrients; and 40 families with 112 individuals bought food that provides less than 80 per cent of recommendations for one or more nutrients.

The data were segregated on the basis of available nutrients in various ways. The amount of money spent either per person or per adult unit per meal seemed to indicate best the influence of family characteristics on food buying habits.

For these families there was a decrease in adult unit meal cost with apparent decrease in nutritional quality of their food supplies. Families with 100 per cent of nutrients available spent an average of 46 cents for each 3200 calories (adult unit). Families with 80 per cent or more of the recommendations spent an average of 38 cents; and those with less than 80 per cent of one or more of the nutrients spent an average of 34 cents per adult unit meal. There appears to be no direct relationship between nutritional quality of family food supplies and mean family size. The mean total income of families with less than 80 per cent of one or more nutrients was lower than that for the other two groups.

In the lower part of Table 1, families are separated on the basis of six meal-cost groups. As per-meal cost increased from 20 cents or less to over 40 cents, mean family size decreased from 3.8 to 2.2 members. Except for the 20-cents-or-less meal-cost group, as costs increased, total numbers of families, numbers of adults, and numbers of children within each group decreased.

Average adult unit meal costs increased with increasing per-person meal costs. Families who spent 20 cents or less per person per meal spent an average of 29 cents per adult unit per meal; those who spent over 40 cents per person per meal spent an average of 60 cents per adult unit meal.

Meal cost increased directly as mean per-capita income increased and tended to increase as total family income grew.

MEAL COST AND AVAILABLE CALORIES

In Table 2 is presented the average number of calories available to these families per recommended adult unit per day. Total available calories increased from 2956 to 4083 per adult unit as nutritional content of the diet increased from 80 per cent or less of some nutrients to 100 per cent or more of all nutrients. Total available calories increased from 2918 to 4512 as meal costs increased from 20 cents or less per meal to over 40 cents.

For this population sample, no family spending 20 cents or less per meal had 100 per cent or more of all nutrients. However, for all other meal-cost

TABLE 2 **Calories available per adult unit**

LEVEL OF NUTRITIONAL RECOMMENDATION	MEAN CALORIES PURCHASED PER ADULT UNIT						
	Meals at all cost levels	Meals costing 20 cents or less	Meals costing 21 to 25 cents	Meals costing 26 to 30 cents	Meals costing 31 to 35 cents	Meals costing 36 to 40 cents	Meals costing over 40 cents
100% or more of all nutrients	4083	—	3540	3456	3750	3938	4950
80% or more of all nutrients	3426	3108	3213	3352	3457	3609	3874
Less than 80% of one or more nutrients	2956	2718	2757	2719	3517	3614	2975
All levels		2918	3160	3441	3617	3829	4512

groups, there were families who fell within each of the three nutritional levels described.

For families with 80 or 100 per cent or more of all nutrients, there was a tendency for total calories to increase as meal costs increased. This was not true for families with less than 80 per cent of one or more nutrients.

Families in the five meal-cost groups with 100 per cent recommended nutrients exceeded the 3200 recommended calories by 256 to 1950. For the other two groups, the families in the three lower meal-cost groups tended to fall below or approach 3200 calories and those in the three higher meal-cost groups tended to exceed this quantity.

Extravagant calorie purchases may accompany more food waste for some families. They might also represent people with higher-than-average caloric requirements associated with larger body build or greater activity. They could also mean overweight.

SOURCES OF CALORIES

In Table 3, the per cent of calories available from protein, fat, and carbohydrate in the food supplies of these families is shown.

For all meal-cost groups in families with 80 or 100 per cent or more of all nutrients, averages of 12 or 13 per cent of calories were derived from protein. For families with less than 80 per cent of one or more nutrients, 10 to 15 per cent of available calories were from protein on the average. Similarly, ranges of calories derived from fat and carbohydrate were widest for the families with less than 80 per cent of one or more nutrients.

These results indicate more similarity in food purchases of families with more adequate food supplies and the possibility of less disciplined dietary patterns for families with relatively smaller quantities of some nutrients.

Table 4 shows the percentage of calories supplied by the various types of food purchased. As already indicated, none of the families who spent 20 cents or less per meal had food that supplied 100 per cent of the recommended quantities of calories and the eight nutrients evaluated. The families in this group who had 80 per cent or more of recommended quantities of nutrients obtained 19.8 per cent of available calories from dairy products, excluding butter and cream. Those with less than 80 per cent of one or more nutrients obtained only 12.0 per cent of calories from dairy products. Otherwise, the percentages of calories supplied to these two groups by various food groups were similar.

Families spending 21 to 25 cents per meal represent the lowest meal cost at which part of the families had 100 per cent or more of recommended nutrients. It doubtlessly requires some discrimination to obtain a food supply with high nutritional quality at this cost.

For this group, as nutritional quality of food supplies decreased, the calories derived from dairy products, excluding butter and cream, decreased from 20.5 to 12.5 per cent. The percentage of calories derived from fruits and vegetables also decreased, and there was a slight increase in the percentage of calories derived from cereal products and other foods. For the families with 80 per cent or less of one or more nutrients, 24.0 per cent of available calories came from meat and eggs, whereas these foods supplied less than 19 per cent of calories for the two better fed groups.

For families who spent 26 to 30 cents per meal and purchased 80 and 100 per cent or more of nutrients, there was little difference in food sources of calories. Families in this meal-cost range with less than 80 per cent of recommended quantities of one or more nutrients received only slightly fewer of their available calories from milk products, cereals, and fruits and vegetables but approximately 10 per cent more calories from meat and eggs than did the two groups of better fed families.

TABLE 3 Source of calories related to nutritional recommendations and food costs

LEVEL OF NUTRITIONAL RECOMMENDATION	COST PER MEAL					
	20 cents or less	21-25 cents	26-30 cents	31-35 cents	36-40 cents	Over 40 cents
Calories from Protein						
	%	%	%	%	%	%
100% or more of all nutrients	—	13	13	13	12	12
80% or more of all nutrients	13	12	13	13	12	13
Less than 80% of one or more nutrients	11	12	14	15	10	14
Calories from Fat						
100% or more of all nutrients	—	39	39	41	42	44
80% or more of all nutrients	38	41	41	43	42	46
Less than 80% of one or more nutrients	40	42	48	44	38	46
Calories from Carbohydrate						
100% or more of all nutrients	—	48	48	46	46	44
80% or more of all nutrients	49	47	46	44	46	41
Less than 80% of one or more nutrients	49	46	38	41	52	40

For the three groups spending more than 35 cents per meal, the percentage of calories from milk products did not appear to be a critical factor in maintaining nutritional quality above the 80 and 100 per cent levels. Families in these nutritional ranges obtained 10.9 to 17.1 per cent of their total calories from milk products. However, the few families in these three high meal-cost groups with less than 80 per cent of one or more nutrients available, had food purchases with only 4.9 to 9.1 per cent of the total calories supplied by milk products.

Other variations in food sources of calories for these three groups of families were inconsistent and showed little relationship to nutritional quality of available food.

QUANTITY OF FOOD PER ADULT UNIT

Table 5 shows actual quantities of food available to families with various percentages of recommended nutrients. For this evaluation, families in each of the three levels of nutrients have been separated on the basis of meal cost.

For families with less than 80 per cent of one or more nutrients, the quantity of foods purchased per adult unit shows considerable variation. Vegetable purchases ranged from approximately 20 oz. per adult unit for the three low meal-cost groups to 36 oz. for the 36- to 40-cent meal-cost group. Milk and milk products were below 20 oz. for all meal costs. Quantities of meat ranged from 6.2 oz. per adult unit for families who spent 20 cents or less per meal to 17.5 oz. for those spending 31 to 35 cents. The combined purchases of meat, milk products, and eggs totaled only 16.5 oz. for families in the 36- to 40-cent meal-cost group. However, for this group, the total purchases of 36.0 oz. fruits and vegetables and 28.4 oz. other foods were higher than comparable purchases for other meal-cost groups.

It is of interest to note that the mean calorie purchases (Table 2) of the six groups with less than 80 per cent of one or more nutrients were from 481 calories below to 414 above the 3200 recommended for an adult unit as used in this study.

Of the families with 80 per cent or more of recom-

TABLE 4 Calories supplied by four food groups to families with various meal costs and recommended dietary levels

LEVEL OF NUTRITIONAL RECOMMENDATION	NUMBER OF FAMILIES	FAMILY SIZE	CALORIES				
			Milk products	Meat and eggs	Cereal products	Fruits and vegetables	Other foods
All Families							
		persons	%	%	%	%	%
100% or more of all nutrients	38	2.9	15.0	22.7	21.5	14.9	25.8
80% or more of all nutrients	68	3.5	16.4	21.0	22.8	12.9	26.8
Less than 80% of one or more nutrients	40	2.8	11.7	23.4	24.7	12.8	27.3
20 Cents or Less per Person per Meal							
100% or more of all nutrients	0	—	—	—	—	—	—
80% or more of all nutrients	7	5.7	19.8	17.6	24.6	11.0	27.0
Less than 80% of one or more nutrients	12	2.6	12.0	17.8	29.8	13.2	27.1
21 to 25 Cents per Person per Meal							
100% or more of all nutrients	6	3.3	20.5	18.9	22.6	14.4	23.5
80% or more of all nutrients	19	4.0	18.2	17.9	23.6	12.8	27.4
Less than 80% of one or more nutrients	16	3.4	12.5	24.0	24.1	11.9	27.5
26 to 30 Cents per Person per Meal							
100% or more of all nutrients	9	3.2	16.0	21.1	22.8	14.1	26.1
80% or more of all nutrients	21	3.2	16.9	20.7	23.2	13.5	25.6
Less than 80% of one or more nutrients	6	2.0	15.1	31.1	18.9	11.0	23.6
31 to 35 Cents per Person per Meal							
100% or more of all nutrients	8	3.0	17.1	22.0	23.1	14.3	23.4
80% or more of all nutrients	13	2.9	13.9	24.1	21.5	13.6	26.9
Less than 80% of one or more nutrients	2	1.5	5.0	35.8	17.9	13.9	27.3
36 to 40 Cents per Person per Meal							
100% or more of all nutrients	6	2.7	11.4	24.5	19.8	14.8	29.3
80% or more of all nutrients	5	2.2	12.7	25.7	21.9	12.3	27.4
Less than 80% of one or more nutrients	3	2.0	4.9	18.3	25.2	17.9	33.7
Over 40 Cents per Person per Meal							
100% or more of all nutrients	9	2.2	10.9	26.4	19.2	16.7	26.7
80% or more of all nutrients	3	2.3	11.6	28.5	18.9	12.3	28.7
Less than 80% of one or more nutrients	1	2.0	9.1	27.1	18.8	14.5	30.5

mended nutrients, the three lower meal-cost groups purchased more milk per adult unit than did those in the three higher meal-cost groups. Families spending 20 cents or less per meal bought an equivalent of 8.2 oz. more milk per day per adult unit than did the over-40-cents-per-meal families. As meal cost increased, the quantities of fruits and vegetables, meat, and eggs increased. The over-40-cents-

TABLE 5 Food available to families with various recommended dietary levels

FOOD GROUP	WEIGHT OF FOOD PER ADULT UNIT					
	Meals costing 20 cents or less	Meals costing 21 to 25 cents	Meals costing 26 to 30 cents	Meals costing 31 to 35 cents	Meals costing 36 to 40 cents	Meals costing over 40 cents
Families with 100% or More of All Nutrients						
	oz./day	*oz./day*	*oz./day*	*oz./day*	*oz./day*	*oz./day*
Green and yellow vegetables	—	3.4	3.9	4.4	4.9	5.9
Citrus fruit and tomatoes	—	6.9	6.5	5.3	6.9	11.1
Potatoes and sweet potatoes	—	4.5	5.3	7.0	5.9	9.6
Other fruits and vegetables	—	14.9	13.8	15.0	19.5	22.9
Sub-total	—	29.7	29.5	31.7	37.2	49.5
Milk equivalents	—	26.1	26.4	31.5	21.6	24.1
Meat, fish, and poultry	—	7.5	8.9	10.2	10.5	15.7
Eggs	—	2.4	2.2	2.2	3.0	2.7
Sub-total	—	46.0	37.5	43.9	35.1	42.5
Cereals and cereal products	—	8.4	8.5	9.6	8.4	10.7
Dry legumes and nuts	—	0.9	0.9	0.9	0.8	1.1
Fats and oils	—	2.0	2.1	2.1	3.2	4.6
Sweets and miscellaneous foods	—	6.4	6.7	6.0	10.6	10.2
Sub-total	—	17.7	18.6	18.6	23.0	26.6
Total	—	93.4	85.2	94.2	95.3	118.6
Families with 80% or More of All Nutrients						
Green and yellow vegetables	2.2	2.7	3.2	3.6	3.8	4.0
Citrus fruit and tomatoes	4.1	5.0	6.4	5.2	4.2	7.4
Potatoes and sweet potatoes	5.1	5.5	5.7	5.5	5.4	5.5
Other fruits and vegetables	8.9	10.2	11.4	11.7	12.7	13.2
Sub-total	20.3	23.4	26.7	26.0	26.1	30.1
Milk equivalents	28.6	28.2	28.2	21.5	20.2	20.4
Meat, fish, and poultry	6.5	6.8	8.3	10.0	11.4	14.3
Eggs	1.2	1.4	1.6	2.1	2.6	3.0
Sub-total	36.3	36.4	38.1	33.6	34.2	37.7
Cereals and cereal products	8.4	7.9	8.2	8.2	8.5	7.7
Dry legumes and nuts	0.7	0.8	0.7	0.9	0.8	1.0
Fats and oils	1.7	2.2	2.2	2.6	2.2	3.0
Sweets and miscellaneous foods	13.4	7.2	6.3	8.2	11.8	9.9
Sub-total	24.2	18.1	17.4	19.9	23.3	21.6
Total	80.8	77.9	82.2	79.5	83.6	89.4
Families with Less than 80% of One or More Nutrients						
Green and yellow vegetables	2.5	2.9	2.7	4.8	3.1	3.7
Citrus fruit and tomatoes	4.7	3.7	5.7	12.3	6.2	4.6
Potatoes and sweet potatoes	5.0	4.8	3.6	2.6	8.3	3.8
Other fruits and vegetables	8.1	8.6	6.3	14.1	18.4	12.8
Sub-total	20.3	20.0	18.3	33.8	36.0	24.9
Milk equivalents	15.4	16.3	18.2	8.9	6.7	11.2
Meat, fish, and poultry	6.2	8.1	11.4	17.5	8.6	11.5
Eggs	1.5	1.3	1.6	2.7	1.2	1.5
Sub-total	23.1	25.7	31.2	29.1	16.5	24.2
Cereals and cereal products	8.1	7.0	5.9	6.3	9.6	5.9
Dry legumes and nuts	0.7	0.8	0.3	2.0	0.7	0.9
Fats and oils	1.9	1.8	1.8	1.9	3.7	2.0
Sweets and miscellaneous foods	4.8	7.8	7.3	10.5	14.4	8.8
Sub-total	15.5	17.4	15.3	20.7	28.4	17.6
Total	58.9	63.1	64.8	83.6	80.9	66.7

per-meal families purchased more than twice as much per adult unit of these last two foods as did the 20-cents-or-less families.

The sweets and miscellaneous purchases of the 20-cents-or-under meal-cost group were higher than any other; their purchases of cereals and cereal products also tended to be high.

Families with 80 per cent or more of the recommended nutrients bought an average of 92 calories below to 674 calories above the 3200 recommended. The 674 excess calories for the group spending over 40 cents are equivalent to the amount supplied by 2.7 oz. fat. It is possible that from the 14.3 oz. meat purchased, these families might have discarded relatively large amounts of calories as fat.

For families on a limited food budget, these differences in food purchases may be critical factors in determining whether all recommended nutrients will be available at relatively high levels.

Families with 100 per cent or more of recommended quantities of all nutrients tended to buy relatively large quantities of fruits and vegetables. For each of the five meal costs, total fruit and vegetable purchases were higher than for corresponding families with less than 80 per cent of one or more nutrients and those with 80 per cent or more of all nutrients. The average quantity of milk products exceeded 20 oz. per adult unit for these five groups and their egg purchases were generous. Average caloric values of food purchases exceeded the 3200 recommended by 256 to 1750 calories per day.

Families within the three nutritional levels represented showed wide variations in total quantities of food purchased. Of the families who spent 20 cents or less per meal, those with less than 80 per cent of one or more nutrients purchased a total of 58.9 oz. food per adult unit per day while those with 80 per cent or more of all nutrients had 80.8 oz. For families in the 21- to 25-cents-per-meal range, total quantities of food purchased were 63.1, 77.9, and 93.4 oz. respectively for families with less than 80 per cent of one or more nutrients, 80 per cent or more of all nutrients, and 100 per cent or more of all nutrients. Similarly, excepting the 31- to 35-cent meal cost, for each of the other meal-cost groups, as nutritive quality of available food supplies increased, the total amount of food purchased also increased. Thus, the total quantity of food available may, to some extent, determine the over-all nutritional quality of their available food supplies.

The fact that some families in all meal-cost groups had 80 per cent or more of recommended nutrients indicates that failure to obtain diets that met this standard was related more to type of food purchased than to limited food budgets. This fact, coupled with the extravagant calorie purchases of some families, indicates that these families need discipline in selecting food.

Summary

Food purchases of 146 families from a continuous marketing panel during 1953 were evaluated on the bases of meal cost and nutritional quality, using the Recommended Dietary Allowances as a nutritional standard. Results are expressed on per-person and per-adult-unit bases, an adult unit being considered equivalent to a twenty-five-year-old man of average size requiring 3200 calories per day.

Thirty-eight families had 100 per cent or more of recommended quantities of all nutrients. Sixty-eight families had 80 per cent or more. Forty families had less than 80 per cent of recommended quantities of one or more nutrients.

Total available calories increased from 2956 to 4083 calories per adult unit as nutritional quality of food supplies increased from 80 per cent or less of some to 100 per cent or more of all nutrients. Available calories increased from 2918 to 4512 per adult unit as meal costs increased from 20 cents or less to over 40 cents.

For families with 100 and 80 per cent or more of recommended nutrients, an average of 12 to 13 per cent of available calories was derived from protein; for those with less than 80 per cent of one or more nutrients, the figure was 10 to 15 per cent.

Families separated into fifteen groups on the bases of nutritional level and meal cost had means of 4.9 to 20.5 per cent of total calories derived from milk products other than butter and cream, 17.6 to 35.8 per cent from meat and eggs, 17.9 to 29.8 per cent from cereal products, 11.0 to 17.9 per cent from fruits and vegetables, and 23.4 to 33.7 per cent from other foods. There was a wide range in quantities of these various types of food purchased. Total quantity of food purchased by these families ranged from 58.9 to 118.6 oz. per adult unit.

Failure to obtain diets of relatively high nutritional level was related more to type of food purchased than to limited food budgets.

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READINGS ON COMMUNICATIONS

From the Journal of The American Dietetic Association

The importance of communications in human relations, and vice versa, is daily being attested to by mounting concern for the improvement in these areas in almost all phases of American life today. A pioneering group in the area of communications is the National Project for Agricultural Communications (NPAC), with headquarters at Michigan State University, East Lansing. A.D.A. is represented on the Steering Committee of this organization by Dr. E. Neige Todhunter, A.D.A. President. A number of other A.D.A. members have been appointed to serve on various committees concerned with the home economics phase of the NPAC program.

Within the last year, NPAC has either sponsored or helped in the planning of the program of a number of workshops on communications designed especially to help home economists. These have included: four workshops at universities and colleges last summer; two this summer; an NPAC-sponsored workshop at Gull Lake, Michigan, last October; a workshop for A.D.A. officers, Coordinating Cabinet, and headquarters staff in Hinsdale, Illinois, in February; and a workshop for the Michigan Dietetic Association in April which served as that Association's annual spring meeting. Other similar meeting-workshops are currently being planned.

Following the workshop at Gull Lake last fall, Dr. Todhunter compiled a list of readings on communications—covering both principles and applied skills—which the JOURNAL has published since 1951. It appears below. Contrary to our usual practice of listing references alphabetically in bibliographies, these appear in chronological order with the latest article appearing first. The editors hope that this may make this list of articles of greater help to members concerned with learning more about the world of communications.

(1) CARTIER, F. A.: Blazing new trails in thinking. Vol. 34: 125, 1958.

(2) HAMBURGER, W. W.: The psychology of weight reduction. The initial nutritional interview; the nutritionist-patient relationship; and complications of weight reduction. Vol. 34: 17, 1958.

(3) DALY, C. S.: Workers' morale related to supervisors' orientation in human relations. Vol. 33: 1286, 1957.

(4) HINKLE, M. M.: The dietary department and public relations. Vol. 33: 1170, 1957.

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(6) BABCOCK, C. G.: Comments on human interrelations. Vol. 33: 871, 1957.

(7) KREITLOW, B. W.: Teaching adults democratically. Vol. 33: 788, 1957.

(8) ALDRICH, C. K.: Prescribing a diet is not enough. Vol. 33: 785, 1957.

(9) BERGEVIN, P.: Telling vs. teaching—learning by participation. Vol. 33: 781, 1957.

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(11) DAVEY, H. W.: Constructive labor relations. Vol. 33: 579, 1957.

(12) BEEUWKES, A. M.: Educational television—nutrition's new opportunity. Vol. 33: 477, 1957.

(13) JONES, E. A.: Communications in planning new facilities. Vol. 33: 270, 1957.

(14) BROWNFAIN, J. J.: Menus and motives. Vol. 32: 1157, 1956.

(15) HEYD, E. H.: Communications and participation —facets of personal relations. Vol. 32: 537, 1956.

(16) BIRD, D. E.: This is your listening life! Vol. 32: 534, 1956.

(17) COFFMAN, R. H.: Management development—fad or fundamental? Vol. 32: 128, 1956.

(18) KEOWN, W. H.: Fundamentals of management. Vol. 32: 39, 1956.

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(21) WISHIK, S. M.: Together we work. Vol. 31: 464, 1955.

(22) KALLEJIAN, V. J.: Barriers to leadership development. Plogglies in the kitchen. Vol. 31: 461, 1955.

(23) ROURKE, A. J. J.: Are you an executive? Vol. 31: 457, 1955.

(24) LEPPERT, F. K.: Ingredients for good personnel relations. Vol. 30: 996, 1954.

(25) PEARSON, J. S., AND SKALITSKY, M. J.: Psychodrama as a teaching aid. Vol. 30: 876, 1954.

(26) BRENER, R.: Interpersonal relationships in dietetics. Vol. 30: 872, 1954.

(27) PETERSEN, E.: You are dealing with people. Vol. 30: 689, 1954.

(28) MARSH, G.: Do you have speak-ability? Vol. 30: 229, 1954.

(29) BIRD, L. E.: Have you tried listening? Vol. 30: 225, 1954.

(30) MACURDA, M.: Principles and policies of personnel management. Vol. 30: 128, 1954.

(31) WHITE, G.: The patient as the focus of attention. Vol. 30: 25, 1954.

(32) KIDNEIGH, J. C.: Professional participation—in perspective. Vol. 29: 465, 1953.

(33) HABERMAN, F. W.: When a dietitian speaks. Vol. 29: 437, 1953.

(34) LEACH, J. M.: Motivating people to use educational material. Vol. 29: 245, 1953.

(35) BRENER, R.: Interpersonal relationships: Can they be "taught"? Vol. 29: 121, 1953.

(36) BRENER, R.: Dietitian and patient: evaluation of an interpersonal relationship. Vol. 28: 515, 1952.

(37) RINDLAUB, J. W.: How are your personal public relations? Vol. 28: 55, 1952.

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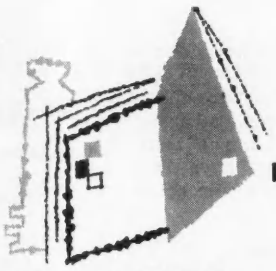


BOOK REVIEWS

Nutrition and Diet Therapy in Relation to Nursing. Second Edition. By Marie V. Krause. Philadelphia: W. B. Saunders Company, 1957. Cloth. Pp. 621. Price $6.

The contents of the second edition of this book have been completely revised and expanded. Each of the four parts includes more current material and in some of the units there is a more complete treatment of basic information. There are five additional chapters, thirty-three more tables, and considerably more than a hundred new illustrations, including not only those directly related to nutrition and diet therapy, but to nursing care as well. Among the new chapters is one on "Geriatric Nutrition," and three in the cookery section on condiments, family-sized recipes, and therapeutic recipes and cookery. New diagnostic and therapeutic diets are included in the part concerned with diet therapy, and there is a broader treament of many diseases, including atherosclerosis.

Among the contributions of the book is the complete table on Nutrients in Household Quantities of Food found in the Appendix. In this table the water, fat, and carbohydrate content of foods is given. This should be particularly appreciated since so many books at this level fail to include this essential information in their tables.

In general the second edition of this book is more vivid and lively than the first. It should have considerable appeal to students in nursing as well as to those in public health work. The greater recognition of more current research and the larger number of references for each chapter probably will increase the value of the book for the teacher and the dietitian.

This reviewer questions the value and the need of including content which is not germane to a textbook in nutrition and diet therapy, but which is the essential content of medical nursing and pharmacology. Admittedly it is desirable to discuss in detail such medications as affect directly the digestion of food, the absorption or the metabolism of nutrients, or which in any way affect the nutritive status of the patient and require dietary modification. Any other mention of medications would seem to detract from the main theme and to use space that might more appropriately be given to other content. There would also seem to be a question as to the value of including a disease such as multiple sclerosis with no suggestions as to the need for maintenance of good nutritional status, indeed with no mention of diet at all.

A broader discussion of carbohydrates in the diet might well have been useful. Little is given to emphasize the relative values of foods with high content of starch and those with high content of sugar. And while considerable space is devoted to nutrition and public health, the chapter includes little systematic discussion of the main types of bacterial food poisoning, or of their prevention in terms of the care and preservation of food.

The need for more precise writing also is evident. Terms are often mentioned in relation to an effect or function and then not clearly identified or defined until later in the chapter. Finally, in some instances there appears to be a need for greater accuracy, as suggested by the discussion on page 3 of Jolliffe's concept of the pathogenesis of a deficiency disease. As the reference is given, it is possible to see clearly that Dr. Jolliffe's interpretation has not been given correctly.—*Faye W. Grant, Ph.D., Director of Nutrition Education, St. Francis Hospital and Loyola University Schools of Nursing, Evanston, Illinois.*

The Jewish Cook Book. By Mildred G. Bellin. New York: Bloch Publishing Company, 1957. Cloth. Pp. 444. Price $3.50.

In her introduction to *The Jewish Cook Book*, Mildred Bellin states that "Jewish cooking, in its fullest sense, is international cooking based on the dietary laws." The Jewish people have lived in foreign lands throughout their history and have incorporated the native dishes of their adopted countries to conform to the dietary laws. Mrs. Bellin gives a brief explanation of the dietary laws which, she states, were among the first public health rulings dealing with the eating of unclean and diseased food. The book contains an interesting description of the Jewish holidays and the customs and traditions that have grown up around them, including the foods traditionally served for these holidays. There is a separate chapter on the preparation of foods for Passover, when the use of leavening agents is forbidden.

This is a complete cook book, comprising recipes from appetizers to desserts which may be used by anyone—not only those desiring to cook according to the Jewish tradition. The recipes are excellent and presented in a clear and simple manner.

This book contains an impressive list of continental dishes which cannot ordinarily be found in one cook book. It includes Hungarian, French, Italian, Viennese, and German recipes, as well as some exotic dishes being served in the new state of Israel. But most important, it fulfills its main purpose, which is the inclusion of the old traditional Jewish recipes that bring to mind nostalgic memories of the foods Grandmother used to make, to the younger generation of those of the Jewish faith.—*Rosalyn Siegel, Cook County School of Nursing, Chicago.*

RECENT BOOKS RECEIVED

Puerto Rican Dishes. By Berta Cabanillas and Carmen Ginorio. Rio Piedras, P.R.: The authors (Box 1907, University Station), 1956. Cloth. Pp. 151.

The Englishman's Food. Five Centuries of English Diet. Revised and with a new chapter by D. F. Hollingsworth. By J. C. Drummond and Anne Wilbraham. London: Jonathan Cape, 1957. Cloth. Pp. 482. Price 36 shillings.

Your Child Is What He Eats. By Harold D. Lynch, M.D. Chicago: Henry Regnery Company, 1958. Cloth. Pp. 188. Price $3.75.

Quantity Catering. By Nell Heaton and Mollie Stockman. London: Museum Press, Ltd., 1957. (U.S. distributor, SportShelf, 10 Overlook Terrace, New York 33). Cloth. Pp. 196. Price $5.75.

Home Economics—Careers and Homemaking. By Olive A. Hall. New York: John Wiley & Sons, Inc., 1958. Simulated leather. Pp. 301. Price $4.25.

Diététique Thérapeutique. By J. Trémolières, A. Mossé, and L. Delbès. Paris: G. Doin & Cie., 1958. Paper. Pp. 555.

Food and Labor Costs

How can the dietitian work with the accounting department to greater mutual advantage? We are convinced this matter is of increasing importance. Each week, we receive letters asking for specific help on the details of setting up a new system of cost control or help in improving an old one. Most replies cannot be answered in a letter but require much careful study by the dietitian, herself. As an aid to our members, the following readings from this JOURNAL have been compiled. It is hoped they will be useful for seminars, staff meetings, and other professional groups wishing to study this problem.

(1) Relations between the Dietary and Accounting Departments. J. K. Porter. J. Am. Dietet. A. 33: 910, 1957.

(2) Problems of Fiscal Control in Hospital Food Service. R. Sigmond. J. Am. Dietet. A. 29: 779, 1953.

(3) Dietary Consultation. VIII. Food Cost Accounting. Compiled by G. McMahon. J. Am. Dietet. A. 27: 302, 1951.

(4) Daily Food Cost Accounting—Why and How. D. Parks. J. Am. Dietet. A. 25: 684, 1949.

(5) Tools for Cost and Quality Control. K. Hart. J. Am. Dietet. A. 33: 264, 1957.

(6) Food Cost Control in Colleges. M. Baker. J. Am. Dietet. A. 28: 799, 1952.

(7) Food Expenditures in Four Institutions. F. Clark and E. Tate. J. Am. Dietet. A. 32: 816, 1956.

Cost and Nutritional Accounting

(8) Cost and Nutritional Accounting. R. Reams. J. Am. Dietet. A. 31: 1002, 1955.

(9) Foods Eaten by College Students, Acceptability, Adequacy and Cost. M. S. Nygreen. J. Am. Dietet. A. 30: 359, 1954.

(10) School Lunch Portions to Meet Children's Needs. G. Augustine and A. Hunter. J. Am. Dietet. A. 33: 123, 1957.

Cost, Palatability, and Acceptability

(11) Costs of Oven-Ready Beef from Carcass, Primal Cut, and Fabricated Sources. M. J. Hayton and P. J. Aldrich. J. Am. Dietet. A. 32: 945, 1956.

(12) Comparison of Grades of Beef Rounds. Effect of Cooking Times on Palatability and Cost. P. J. Aldrich and B. Lowe. J. Am. Dietet. A. 30: 39, 1954.

(13) Analysis of Food Dollar in a Children's Home. I. G. Dubar. J. Am. Dietet. A. 31: 1147, 1955.

(14). Making Food Worth Talking About. H. Buik. J. Am. Dietet. A. 33: 132, 1957.

(15) Utility and Economy in Using Prefabricated Meats. L. H. Kotschevar, A. Mosso, and T. Tugwell. J. Am. Dietet. A. 29: 878, 1953.

Labor Costs

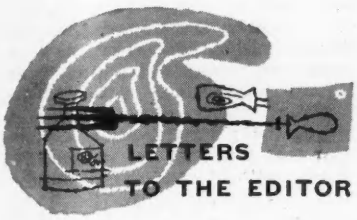
(16) Better Control by Management of Direct Expenses. G. L. Stumpf and B. Donaldson. J. Am. Dietet. A. 33: 117, 1957.

(17) Labor Hours in the Dietary Department. B. Donaldson. J. Am. Dietet. A. 33: 1239, 1957.

(18) Labor in the Dietary Department. E. L. Bakken and M. Northrop. J. Am. Dietet. A. 32: 953, 1956.

(19) Labor in the Dietary Department. A Study of Ten Hospitals. B. H. Tuthill and B. Donaldson. J. Am. Dietet. A. 32: 541, 1956.

Before a plan is finally adopted, one must fit all parts of the menu planning, food purchases, preparation, service, storage, and inventory together or the accounting system will fail. These areas are brought together in *Hospital Food Service Manual,* Publication M27-54 of the American Hospital Association, published in 1954. This compilation was a major project of the Joint Committee of the American Hospital Association and The American Dietetic Association and represents the efforts of many committees and members of our own Association in behalf of those wishing specific help.



Dietary Management

TO THE EDITOR:

We should like to know what the food service management firms offer in the way of service to a hospital which a dietitian does not.—*Pauline E. Schatz, Chairman, Workshops Committee, California Dietetic Association, North Hollywood.*

EDITOR'S NOTE: A number of recent articles present more than one side of the food service management firm's role in the department of dietetics. The following references may be helpful in considering the problem.

The case for company operation. Inplant Food Mgmt. 4: 22 (March), 1957.

The case for contract operation. Inplant Food Mgmt. 4: 22 (March), 1957.

Differences between industrial and hospital management. J. Am. Dietet. A. 33: 696, 1947.

JUDSON, B. R.: Who should direct the dietary service? 2. Outside food service management. Hospitals 31: 77 (July 16), 1957.

KEATES, S.: Should you engage a food service consultant? Inplant Food Mgmt. 4: 36 (April), 1957.

KRAMER, D. D.: Food service management. Modern Hosp. 84: 88 (July), 1957.

KRAMER, D. D.: Who should direct the dietary service? 1. Hospital's own dietitian. Hospitals 31: 76 (July 16), 1957.

KRAMER, D. D.: What does operating your own dietary department offer you? J. Am. Dietet. A. 33: 69, 1957.

LETOURNEAU, C. U.: Management and the profession of dietetics. J. Am. Dietet. A. 33: 691, 1957.

RODDE, H. R.: Evaluation of the food service: this hospital improved their dietary department by: a cost study, a menu review, cafeteria re-organization. Hospital Mgmt. 82: 92 (Nov.), 1956.

SHOWALTER, A. E.: Food service management. Part 2. Modern Hosp. 84: 94 (Aug.), 1957.

STALEY, J. D.: Transplanting industrial programing to hospitals. Hospitals 29: 96 (Sept.), 1955.

STOKES, J. W.: Good food starts with good management. Modern Hosp. 86: 112 (Feb.), 1956.

TAYLOR, K.: Comparative analysis of hospital and industrial executives. Hospitals 29: 100 (Sept.), 1955.

What's brewing in the kitchen? Modern Hosp. 83: 74 (Oct.), 1956.

Our Current Literature Section

TO THE EDITOR:

One of the features of the JOURNAL of which I am most appreciative is the review of Current Literature. I know of few other professional journals which offer readers such an inclusive survey of pertinent writings. The members participating in the preparation of the reviews are to be commended for their objective, concise reports.—*Dorothy J. Galbreath, Milwaukee.*

Need for Information on Administrative Policies

TO THE EDITOR:

Congratulations for publishing in the February issue of the JOURNAL the editorial, "Policies for Effective Administration of the Department of Dietetics" by Mary C. Zahasky and Norman A. Brady. May I add that I am in agreement with the six types of policies as stated in the editorial?

It is my belief that there should be more of this kind of information available to the hospital administrator and the dietitian. Many administrators admit the need for more knowledge concerning the dietary department. Articles such as this would help the dietitian, especially the young, inexperienced members of our profession, to establish the desired inter-departmental relationships as well as to build and strengthen an understanding with the administrator.—*Ruth E. Silvester, Director of Dietetics, Allegheny General Hospital, Pittsburgh.*

TO THE EDITOR:

In this time of shortage of dietitians and young dietitians stepping into positions of authority, I feel that there should be more articles and information printed as to what administrators expect of their dietary department; how they plan to help their dietitians live up to these expectations; what they wish to learn from their dietitians; and how they wish this to be presented to them.—*Irene L. Willson, Director of the Dietary Department, Shadyside Hospital, Pittsburgh.*

EDITOR'S NOTE:

We hope that the article by George Cartmill, "What Does Top Management Expect?" which begins on page 727 of this issue will serve as a helpful follow-up.

Art and Dietetics

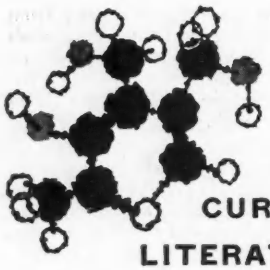
TO THE EDITOR:

I was particularly interested in Winifred M. Ayers' article, "Changing Attitudes Toward Overweight and Reducing" in the January issue of the JOURNAL. Her reference to art work during the different periods of history was most enlightening. I have sent excerpts of this article to William Woolfenden, Head of the Department of Education at the Detroit Institute of Arts. The Institute owns "A Country Wedding" by Pieter Brueghels, which Miss Ayers mentions.

In my own experience, I have found the old masters excellent instructional aids. For instance, symptoms of malnutrition in one of the children of the Oliver St. John family are quite evident in this picture painted by the Flemish artist, Anton Van Dyck, in the seventeenth century. St. John was the first Earl of Bolinbroke. In the photograph you see three of our students in nutrition examining the picture while on a field trip to the Institute.

Another case in point is the grinning urchin in Franz Hals' "Laughing Boy." The decayed teeth and stringy hair displayed are both indicative of improper nutritive balance. Other artists our students have studied include Antoine LeNain (French), Frederico Barocci (Italian), and two Flemish painters, Quentin Massys and Anton VanDyck. —*L. Margaret Johnson, Ph.D., Wayne State University, Detroit.*

Wayne Photo



CURRENT LITERATURE

Contributed by Janette C. Carlsen, The Johns Hopkins Hospital, Baltimore; Clara Karl, University of Chicago Clinics; Elizabeth Tuft, Chicago Wesley Memorial Hospital; Ruth Marie Valentine, Dietetic Intern, VA Center, Los Angeles; and the Journal staff.

THE AMERICAN JOURNAL OF CLINICAL NUTRITION

Vol. 6, March-April, 1958

*Severe nutritional macrocytic anemia in emotionally disturbed patients. R. W. Monto, D. Kavanaugh, and J. W. Rebuck.—p. 105.

*The effect of dietary protein, fat, and choline upon the serum lipids and lipoproteins of the rat. R. E. Olson, J. R. Jablonski, and E. Taylor.—p. 111.

Nutritional status of selected adolescent children. II. Vitamin A nutrition assessed by dietary intake and serum levels. Biomicroscopic and gross observations. E. A. Donald, N. C. Esselbaugh, and M. M. Hard.—p. 126.

*The loss of calcium, phosphorus, iron, and nitrogen in hair from the scalp of women. F. A. Johnston.—p. 136.

*The metabolism of serum albumin in man during brief starvation. N. S. Gimbel and C. Riegel.—p. 142.

*Ascorbic acid requirements of adults: 30 mg. or 75 mg? E. Uhl.—p. 146.

*Nutritional adaptation to low dietary intakes of calories, proteins, vitamins, and minerals in the tropics. C. L. Pathak.—p. 151.

Calculi and kidney calcification from feeding milk diets to rats and hamsters. P. Sambhavaphol, E. B. Bosworth, and C. M. McCay.—p. 159.

*Serum cholinesterase levels of Central American children in relation to nutritional status. G. Arroyave, R. Feldman, and N. S. Scrimshaw.—p. 164.

The physician's role in the school lunch program. J. C. Obert.—p. 172.

Nutritional Macrocytic Anemia. Observations on five emotionally disturbed patients who developed nutritional macrocytic anemia are reported. The psychiatric or neurologic aberration may result not only from tissue oxygen depression related to the severity of the anemia, but also to altered cellular metabolism of the central nervous system seen in certain anemias of nutritional origin. Also, emotionally disturbed patients may so alter their eating habits as to produce a deficiency state with resultant anemia. The macrocytic anemia responds promptly to folic acid, vitamin B_{12}, refined liver extract, and hyperalimentation. The combination of folic acid and adequate supportive psychosomatic therapy offers the most favorable treatment.

Effect of Dietary Protein, Fat, and Choline. In this paper are reported some experiments which delineate the role of the lipotropic factors, choline and methionine, in the regulation of the serum lipids and lipoprotein in the rat. Young adult rats develop a marked hypocholesterolemia, hypolipemia, and hypobetalipoproteinemia when fed soy protein diets low in methionine and choline. These effects are prevented by the addition of 0.3 per cent choline to the diet and are partially prevented by casein, presumably because of its increased methionine content. The level and type of dietary fat did not modify this effect of choline on serum lipids. It is suggested that the lipotropic factors, as reflected principally by animal protein intake, may play a role in controlling serum lipids in man as well as the rat.

Loss of Minerals in Hair. In careful nutritional balance studies the small losses of calcium, phosphorus, iron, and nitrogen from the hair could be of significance. In this study of twelve women, data are presented regarding the loss of these substances attributable to the loss of hair from the scalp.

Metabolism of Serum Albumin. This study was designed to determine whether the catabolism of albumin increased under conditions promoting the catabolism of tissue protein in general. A starving healthy subject received intravenously human serum albumin in one experiment and an amino acid mixture in another. Following the amino acid mixture, the urine contained almost equivalent amounts of nitrogen and sulphur. Although some catabolism of albumin occurred, the majority of the albumin was retained by the subject. This finding indicates that even under the stimulus to protein catabolism posed by starvation, the rate of albumin breakdown is relatively slow.

Ascorbic Acid Requirements. Considerable disagreement exists concerning the optimal requirements of adults for ascorbic acid. The fact is that whereas there is agreement on recommending a daily allowance of 30 mg. ascorbic acid for infants, the British Medical Research Council and other scientists in Northern Europe are of the opinion that about the same quantity is also the optimal requirement of healthy adults (apart from pregnant and lactating women), while the National Research Council in the U.S. recommends a daily allowance of 75 mg. for healthy adults. Evidence for each of these recommended levels is presented. The methods of examination that can be applied to human beings apparently are so coarse that all that can be established on the existing basis is that adults perhaps have a minimum requirement of 5 to 10 mg. ascorbic acid a day when subsisting on a diet that is adequate in all other respects. The optimal requirement of adults, on the basis of experience gained from guinea pigs and infants, should for the present most safely be estimated by multiplying the minimum requirement by ten. Hence, the optimal requirement of adults must be estimated at 50 to 100 mg. ascorbic acid a day leading to the American figure of 75 mg. which brings the plasma ascorbic acid up near that which we find in breast-fed infants without causing "saturation."

Nutritional Adaptation to Low Dietary Intakes. The assessment of the diet of 240 subjects selected from two socio-economic groups of India (medical students and street beggars) indicates a continued low intake of total calories, animal proteins, vitamins A and D, ascorbic acid, the B-complex, and minerals (iron, calcium, phosphorus) especially in the beggars, for several years without clinical, subclinical, or radiologic evidence of deficiency states. It is concluded that in consequence of a prolonged low intake, the body seems to develop some sort of "nutritional adaptation." Such an adaptation may function through increased absorption and selective internal economy favoring more important needs (growth and mineralization of skeleton, vital metabolic needs) rather than the less important ones (body weight).

Serum Cholinesterase Levels. The levels of serum cholinesterase activity were studied in school children and in pre-school children from different socio-economic and nutritional backgrounds in Central America. The cholinesterase activity showed no tendency to be related to the socio-economic background or the nutritional status of these children. It is concluded that serum cholinesterase is not a sensitive measure of protein deficiency and drops only when the deficiency is so severe as to be clinically apparent.

AMERICAN JOURNAL OF DIGESTIVE DISEASES

Vol. 3, March, 1958

*Relationship between blood amylase and factors affecting carbohydrate metabolism. 1. The regulation of blood amylase level in subjects without pancreatic disease. D. A. Dreiling, H. D. Janowitz, D. Marshall, and P. Haemmerli.—p. 214.

Vol. 3, April, 1958

Anorexia nervosa: fact and theory. J. C. Nemiah.—p. 249.

Amylase and Carbohydrate Metabolism. The blood amylase level in subjects without pancreatic disease has been shown to change following the administration of drugs that affect carbohydrate metabolism. In general, the blood amylase falls when there is increased utilization of sugar and rises following administration of drugs that diminish the utilization of carbohydrate. Epinephrine, which diminishes the exocrine secretion of amylase by the pancreas, raised the blood amylase level. In patients with a normal pancreas and unobstructed duct system, secretin and pancreozymin, which stimulate pancreatic flow and enzyme elaboration, do not cause

an increase in blood amylase. The amylase response to glucagon in two patients with subtotal pancreatectomy was similar to that seen in normal subjects. The normal blood amylase is regulated by extrapancreatic processes, the site of which remain obscure at present.

AMERICAN JOURNAL OF MEDICINE

Vol. 24, April, 1958

*Hypothyroidism with anemia demonstrating abnormal vitamin B_{12} absorption. S. L. Leithold, D. David, and W. R. Best.—p. 535.

Hypothyroidism with Anemia. Three of seven patients with hypothyroidism showed abnormal urinary excretion tests using vitamin $B_{12}Co^{60}$. In all three, a low excretion was noted both with and without the addition of intrinsic factor concentrates. Five attempts were made to demonstrate in their gastric aspirates a substance inhibiting intrinsic factor but on only one such test was there a suggestion of inhibition. It is concluded that defective intestinal absorption of vitamin B_{12} sometimes occurs in hypothyroidism, because of a local intestinal block in absorptive ability or depressed secretion of the intrinsic factor or both. These defects when present are only very slowly reversible on thyroid therapy. Defective absorption of B_{12} is not the cause of anemia in most cases of hypothyroidism in which thyroid is believed to have a direct effect on erythropoiesis. Decreased demands for vitamin B_{12} by the bone marrow during hypothyroidism may account for the fact that megaloblastic anemia as a complication of myxedema is quite unusual.

THE AMERICAN JOURNAL OF NURSING

Vol. 58, May, 1958

*One nutrition project leads to another. S. Carlson.—p. 683.

*One man's meat. R. M. Coerver.—p. 690.

Nutrition Project. As a consequence of an earlier article reporting a nutrition education program for grade school children in the Midwest, another program, this one in the East, was tried. It proved to be very successful and is now an annual project. The project called on fourth grade children to spearhead the interest of other classes and children in the school. The children "promoted" good nutrition themselves by preparing a "nutrition wheel" showing the Basic 7 as well as a letter for all parents giving the results of a survey on their own eating habits. Teachers and school officials cooperated enthusiastically. Science classes studied sources of food and how it grows. Different foods from different cultures were also studied. English teachers helped children compose invitations to the climaxing luncheon which the children organized for their parents to mark the end of the program. In the opinion of the author, the "Good Eating" project and the international luncheon certainly proved that good eating is good education.

One Man's Meat. In food-borne intoxications the human body reacts to the ingestion of preformed toxic elements. Most chemical intoxications are caused by the careless use of certain types of kitchen ware, pesticides, and food additives. Some staphylococcal organisms can produce a toxin which causes illness. These organisms are usually transferred to food by handlers with infections of the skin, nose, or throat. Foods most often responsible for carrying staphylococcal organisms are salads, gravies, and custards. Botulinus intoxication has a high fatality rate. Foods are easily contaminated since *Clostridium botulinum* bacilli are widely distributed in nature. When the organisms are present in improperly canned or preserved foods, they multiply and produce botulinus toxin. Poisonous plants and animals, such as mushrooms, snakeroot, fava beans, and rhubarb leaves, can also cause illness. Where infections are food-borne, the disease-producing organisms gain entry into the body when a person eats or drinks contaminated food or fluid. The organisms multiply within the body and cause disease. Some of the diseases which are spread this way are shigellosis or bacillary dysentery, salmonellosis, and typhoid fever. Dysentery, the spread of salmonellosis, and typhoid are alike in that they have the same reservoir and source of infection. They enter the body via the mouth and are spread by contaminated urine or feces. Transmitting agents are food, water, milk, or soiled inanimate objects. These agents are often contaminated by flies. Some additional agents of food-borne diseases are streptococci; intestinal parasites, such as *Trichinella spiralis; Endamoeba histolytica;* and possibly viruses. The importance of a thorough investigation of every outbreak of food-borne disease cannot be overemphasized.

AMERICAN JOURNAL OF PHYSIOLOGY

Vol. 192, March, 1958

*Glucose penetration into liver. G. F. Cahill, Jr., J. Ashmore, A. S. Earle, and S. Zottu.—p. 491.

Glucose Penetration into Liver. To further define the action of insulin on liver metabolism, studies were undertaken to determine whether the cell wall could be the site of action as has been proposed for muscle. Control rats and those injected with varying amounts of glucose had a higher glucose concentration in liver water compared with plasma water with low plasma glucose levels and vice-versa with high plasma glucose levels. Radioactive glucose was freely distributed into total liver water in dogs, whether the liver was taking up or producing glucose. Other compounds which entered rat liver cells were: fructose, mannose, galactose, sorbitol, mannitol, glycerol, and alpha-methyl glucopyranoside. Maltose, sucrose, and raffinose were restricted to extracellular fluid. Alloxan diabetic rats likewise showed free equilibration of radioactive glucose between plasma and liver water. The free permeability of liver to glucose and other small carbohydrates suggests that insulin in liver alters intracellular enzyme functions and not permeability of the cell wall as in muscle.

AMERICAN JOURNAL OF PUBLIC HEALTH

Vol. 48, April, 1958

*Milk hygiene in Great Britain. H. Burrow.—p. 454.

Milk Hygiene in Great Britain. As things stand now, milk producers are registered with the Ministry of Agriculture, Fisheries and Food, but the control of milk production is in the hands of a division of that Ministry which is staffed not by veterinary surgeons or even wholly by public health inspectors, but by milk production officers, the majority of whom have little training. The policy is that of detecting low standards of hygiene by milk sampling and then visiting the producers. The approach preferred ought to be one of preventing contamination of milk rather than of detecting it and putting matters right after it has occurred. However, it must not be thought that the British public is provided with a milk supply which is completely out of line with modern ideas of milk hygiene. Nevertheless, more preventive measures should be practiced.

AMERICAN JOURNAL OF SURGERY

Vol. 95, April, 1958

*Intravenous fat as supportive therapy after severe injuries. C. P. Artz and T. K. Williams.—p. 651.

Intravenous Fat as Supportive Therapy. A total of 302 units of a commercially prepared fat emulsion was given to twenty-eight patients. During five of the infusions, reactions such as nausea, chills, and urticaria occurred. These were very minor, and the patients showed no untoward effects when re-infused with fat emulsion on the following day. After eighteen infusions in various patients, a benign rise in temperature to above 100.6°F. was noted. Only one patient showed a serious response. This consisted of jaundice after twenty-four infusions. At present, it appears that moderate quantities of fat emulsion are safe for clinical use, but large quantities may evoke a severe response. Interference with liver function and the coagulation mechanism after intravenous infusion of fat emulsion over a prolonged period is the primary problem requiring further study. Metabolic balance studies were carried out on several patients. Data on six typical patients show the protein-sparing effect of intravenous fat emulsion. This preparation appears to be a useful

adjunct in injured patients and other patients who are unable to take adequate calories by mouth.

ANNALS OF INTERNAL MEDICINE

Vol. 58, March, 1958

*The effect of antecedent diet on urine concentrating ability. W. H. Meroney, M. E. Rubini, and W. B. Blythe.—p. 562.

Antecedent Diet and Urine Concentrating Ability. Diminished ability to concentrate the urine is considered a criterion of renal disease. If an overnight dehydration test yields a specific gravity of less than 1.022, other examinations may be performed to establish the diagnosis. In thirty-six concentration tests performed on nine subjects, the ability to concentrate the urine was increased when the subjects ate a high-protein diet.

ANNALS OF THE NEW YORK ACADEMY OF SCIENCES

Vol. 69, January, 1958

*Protein nutrition. N. W. Flodin, consulting editor.—pp. 855-1066.

Protein Nutrition. This special issue takes the form of a monograph presenting a series of papers given at a conference on protein nutrition held by the New York Academy of Sciences in March 1957. The first four papers deal with protein requirements of children, of adolescents, and of the aged. Three papers are on kwashiorkor, one report being from French West Africa, one from Central America, and one from Mexico. The following papers deal with biochemical findings of the South African Bantu, with calories and protein nutrition, with balance and imbalance of amino acids, with enrichment of foods with protein, and with economic aspects of amino acid supplementation. Discussion and comment on these papers brings out some of the important questions and controversial issues on minimum and optimum protein needs, biochemical individuality, amino acid patterns, use of fish flour, various types of beans, peanut flour, and crystalline amino acids for protein supplementation of a balanced diet.

ARCHIVES OF INTERNAL MEDICINE

Vol. 101, April, 1958

*Inhibition of cholesterol biosynthesis in man. G. L. Curran and D. L. Azarnoff.—p. 685.

Inhibition of Cholesterol Biosynthesis. The object of most treatments of atherosclerosis is the reduction of serum cholesterol. The rationale for the therapy is the statistically significant correlation between coronary atherosclerosis and elevated serum cholesterol. Even though there is no conclusive evidence that the course of the disease is modified by this treatment, the best available field for the clinical investigation of atherosclerosis remains the experimental reduction of the cholesterol stores of the body. The effects of fats on serum cholesterol levels have been extensively reported; less emphasis has been placed on the role of inhibitors. Experiments with animals give promising evidence that several compounds can successfully inhibit cholesterol biosynthesis.

BRITISH MEDICAL JOURNAL

No. 5074, April 5, 1958

*Bacterial content of small intestine of children in health, in celiac disease, and in fibrocystic disease of pancreas. C. M. Anderson and R. F. Langford.—p. 803.

Bacterial Flora of Small Intestine of Children. The extent and nature of the bacterial flora of the small intestine were studied in healthy children, those with celiac disease, and those with fibrocystic disease of the pancreas. In healthy children, the small intestine was free from a resident fecal-type flora in all those studied by direct sampling and in the majority studied by intubation methods. In the majority of patients with celiac disease and with fibrocystic disease of the pancreas, the small intestine was also free from a resident fecal-type flora. In these patients no association between steatorrhea and an abnormal small intestinal flora could therefore be demonstrated. The intubation technique has severe limitations as a means of studying bacterial flora in the small intestine, at least in children. However, results of a "negative" type are of value, but results of a "positive" type must be interpreted with caution.

FOOD TECHNOLOGY

Vol. 12, April, 1958

*The fortification of bread with lysine. IV. The nutritive value of lysine-supplemented bread in reproduction and lactation studies with rats. R. Culik and H. R. Rosenberg.—p. 169.

*Studies on the microbiological quality of precooked frozen meals. D. A. Huber, H. Zaborowski, and M. M. Rayman.—p. 190.

Fortification of Bread with Lysine. The nutritive value of a diet based on white bread containing 6 per cent nonfat dry milk was compared with that of a diet based on a similar bread but baked from flour supplemented with 0.25 per cent L-lysine•HCl. The comparison was carried out with groups of rats maintained on the two diets from weaning until death and which were bred until fertility ceased. Lysine-supplementation of the bread improved reproduction and lactation performance considerably and uniformly throughout seven litters of the parent generation and all successive generations. Although this performance was similar to that of animals maintained on stock rations, the breeding performance of the animals maintained on the commercial bread diet was poor and decidedly inferior to that of those maintained on the lysine-supplemented bread diet.

Microbiologic Quality of Precooked Frozen Meals. Sanitation and quality control standards needed for the production of precooked frozen meals are discussed. Survey data are presented on the microbiologic quality of meals produced commercially under military specification for us by the U.S. Air Force. At present, bacteriologic standards established for this specification include a standard plate count maximum of 100,000 organisms per gram and a coliform plate count of less than 10 organisms per gram. Comparison is made with a limited number of similar products available commercially. Additional data are included on qualitative analyses for the presence of staphylococci, enterococci, and Salmonella. Also reported are two plant studies of the production of precooked frozen meals for the military in which samples were taken at various stages throughout processing from raw materials to the finished product. With plant sanitation under continuous inspection by the U.S. Veterinary Corps and the U.S.D.A., the quality assurance provisions of the specification were met in over 90 per cent of the production.

GASTROENTEROLOGY

Vol. 34, April, 1958

*The pancreas: contributions of clinical interest in 1956. T. A. Johnson and M. H. Kalser.—p. 543.

*Hepatic coma. M. I. Grossman.—p. 667.

Diet Therapy and Pancreatitis. Acute pancreatitis may develop when a person ingests a large amount of food following a prolonged fast. It is possible that during a prolonged period of starvation and dehydration there develops a thick, inspissated secretion in the ductal system of the pancreas, which will act as an obstruction when a large food intake excessively stimulates the pancreas. To correct a pancreatic deficiency and control a respiratory infection, a diet high in calories and protein, low in fat, and moderate in starch content is recommended. Fat intake may be increased as fat becomes better tolerated. Symptoms of chronic pancreatitis include diarrhea and loss in weight. Dietary treatment requires a bland diet, avoidance of overeating, and complete abstinence from alcohol.

Hepatic Coma. The patient in hepatic coma should receive his caloric requirement in the form of concentrated glucose solutions given as drinks, by intragastric drip or intravenously. It is wise to remove all dietary protein because of its possible inciting effect in coma.

JOURNAL OF AGRICULTURAL AND FOOD CHEMISTRY

Vol. 6, April, 1958

*Residues in milk from dairy cattle treated with methoxychlor for fly control. K. Helrich, E. J. Hansens, and P. Granett.—p. 281.

*Effect of storage conditions on nutrients in frozen green beans, peas, orange juice, and strawberries. P. H. Derse and L. J. Teply.—p. 309.

Insecticide Residues in Milk. Samples of milk from methoxychlor-treated cows on four New Jersey farms were analyzed to determine the insecticide residue present at various

intervals after application. Results indicate that methoxychlor is present in minute, but detectable, amounts in the milk of treated cows and that the concentration diminishes with successive samplings after spraying or dusting.

Storage Effects on Frozen Foods. Frozen foods are known to remain well preserved at 0°F., but storage at higher temperatures can cause vitamin losses. In this experiment, frozen French-style green beans, green sweet peas, sliced strawberries, and orange juice concentrate were stored at 0°F., for 2, 5, and 11 months and exposed to 20°F., for 1 month at the end of these periods. Control samples were held at 0°F. Twenty-one nutrients were determined. In general, there was good retention of vitamins, except for ascorbic acid in all samples of green beans and in the various samples of peas.

JOURNAL OF THE AMERICAN GERIATRICS SOCIETY

Vol. 6, March, 1958

*Nutritional experiments on longevity. C. M. McCay.—p. 171.

*Cellular mechanism of metabolism. S. Weinhouse.—p. 182.

*Nutritional needs of maturing man. S. O. Waife.—p. 190.

Nutritional Experiments in Longevity. This paper presents some of the thoughts of one research chemist who has spent more than thirty years laboring with diverse specialists in attempting to solve some of the basic and applied problems concerning the relationship between diet and disease in old age. Various experiments in animals are presented.

Cellular Mechanism of Metabolism. Before the process of aging can be understood, much less controlled, more must be learned about the basic physiology and biochemistry of cells. It is particularly important to learn something of the mechanisms of control and regulation of the metabolism of foodstuffs. In this article an oversimplified description is given of the transformations and interconversions of the foodstuffs and the cell components. Then it is shown where in these networks of reactions, disturbances or lack of control might lead to disease. Research progress in atherosclerosis is discussed. It is felt at present there is no justification for drastically altering dietary habits. A policy of dietary moderation seems the only sensible course.

Nutritional Needs of Maturing Man. There is need for longitudinal studies involving a careful, continuous follow-up of adults as they mature. Not much is known about the so-called normal conditions in geriatrics. It is felt that our senior citizens should be compared with others of the same maturity and not with younger adults. Under favorable conditions, the food intake in the aged is likely to be satisfactory, but when there are illnesses or complications of a physical, psychologic, or social nature, it is easy for the aged to slip into a serious malnutritional state. A caloric intake sufficient to keep the body weight close to that for the person of his height at about age twenty (a time when obesity is not yet common) is recommended. If there is doubt about adequacy of diet, vitamin and/or mineral supplements may be given.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

Vol. 166, April 12, 1958

*Nutrition in relation to dermatology. Council on Foods and Nutrition. A. L. Lorincz.—p. 1862.

*Serum vitamin B_{12}. Foreign Letters–United Kingdom.—p. 1896.

*Effects of cooking on food. Questions and Answers.—p. 1923.

*Acne and uncontrollable desire for sweets. Questions and Answers.—p. 1925.

Vol. 166, April 19, 1958

*Scurvy. Foreign Letters–Canada.—p. 2065.

*Foods for child with diarrhea. Questions and Answers.—p. 2098.

Vol. 166, April 26, 1958

*Serum cholesterol measurement—hazards in clinical interpretation. A. U. Rivin, J. Yoshino, M. Shickman, and O. A. Schjeide. —p. 2103.

*Effect of safflower oil emulsion on serum cholesterol levels in young adult males. Its use as a supplement to a normal diet. R. Perkins, I. S. Wright, and B. W. Gatje. —p. 2132.

*Feeding of infants and children in hot weather. Council on Foods and Nutrition. F. A. Norman and E. L. Pratt. —p. 2168.

*Diets. Correspondence.—p. 2214.

*Weight reduction. Correspondence.—p. 2214.

*Brown sugar. Questions and Answers. —p. 2242.

Dermatology and Nutrition. Contrary to popular belief, food allergies or nutritional deficiencies play only an insignificant role in the skin eruptions commonly seen in the U.S. Alimentary obesity is by far the most frequently encountered form of malnutrition that aggravates skin eruptions. Obesity precipitates or promotes a variety of disorders of skin on opposing surfaces of the body such as the corner of the lips because of the accumulation of heat and moisture between folds of the skin. As obese persons tend to perspire more profusely, this excessive perspiration adversely affects normal skin and especially most inflammatory skin diseases. Specific dietary restrictions are valuable in treating some diseases. Carbohydrate restrictions appear to help in chronic furunculosis, a condition associated with boils, and in hidradenitis, the inflammation of sweat glands. A low-fat diet is helpful in treating xanthomatoses, in which there is a disturbance in fat metabolism. Vitamin A has been found to be of unquestionable value in only a few rare diseases. The B-vitamins are of little use in modern dermatology, although the use of niacin can be credited with wiping out pellagra in this country. However, dietary restrictions do not appear to have much effect on acne vulgaris. This is supported by the failure of rigid diets in unhappy teen-age sufferers.

Serum Vitamin B_{12}. The serum vitamin B_{12} level was assayed in normal subjects and in patients suffering from various conditions using a microbiologic method. The range of values in 123 normal subjects was 150 to 1000 mcg. per milliliter (average 450). Vitamin B_{12} levels were determined in patients with various diseases as pernicious anemia, megaloblastic anemia, and chronic leukemias.

Cooking of Food. The destruction of pathogenic organisms seems to be an extremely important reason for cooking food. Cooking also increases the palatability of many foods and, in the tuberous vegetables, helps to break down the fibrous tissue. Heat increases the digestibility of certain nutrients. Heat will also destroy certain antimetabolites, such as avidin in raw egg white. It would seem undesirable to dismiss lightly the psychologic and sensory reactions that cooking favorably influences in foods.

Acne and Sweets. A situation is presented in which a fifteen-year-old boy with acne vulgaris of face and back has an insatiable and uncontrollable desire for sweets. It is felt that if the boy will avoid chocolate, his desire for sweets should not interfere with the cure of his cutaneous condition. Whether X-ray therapy, estrogen administration, or antibiotic therapy is the treatment of choice or what local therapy should be prescribed depends on many factors. Perhaps of greater importance is the habit pattern being developed by the boy. If he cannot develop self-control by himself, the aid of a psychiatrist should be sought.

Scurvy. Scurvy would hardly be expected to be a growing menace in the larger cities, but physicians from the Hospital for Sick Children, Toronto, have reported a decided rise in the incidence of infantile scurvy in their area, and Winnipeg physicians are also alarmed at this problem. Until 1953, the average annual incidence of admissions for scurvy to the Toronto hospital was seven, but in 1954 there were forty-six cases, and in 1955 there was twenty-five. Most of the patients were between six and twelve months old, and the average length of breast feeding had been less than eleven days. Nearly 80 per cent of the infants had received neither orange juice nor synthetic ascorbic acid. The authors recommended the use of the press and other mass media to educate parents, more specific advice from physicians, instructions by pharmacists on ascorbic acid content of various preparations, incorporation of ascorbic acid into certain foods, and the encouragement of breast feeding.

Foods for Child with Diarrhea. The use of foods during and immediately after an episode of diarrhea depends on the duration, severity, and any previous history of recurrent diarrhea or food intolerance. Relatively mild, simple, acute diarrhea frequently is managed by feeding the infant boiled skim

milk until the diarrhea improves. Simple foods, such as fruit or vegetable juices, ripe banana, scraped ripe apple, strained meats, or cottage cheese, can then be cautiously offered for a day or two before gradually reintroducing the regular diet. Diarrhea of intermediate severity often can be treated with orally-given fluids containing electrolytes if the condition of the patient is watched carefully. If the diarrhea is severe or prolonged to the point of moderate dehydration or if it is associated with vomiting, no feedings should be given orally but fluids be given intravenously.

Serum Cholesterol Measurement. The conclusions which can be drawn from determinations of total serum cholesterol must take into account the varying results obtained by the use of different methods in different laboratories, the discrepancies to be expected between samples taken on the same day, and the physiologic variations in a given individual over periods of weeks or months. Duplicate serums from three patients who had had myocardial infarctions were analyzed in five different laboratories, one of which used two methods. The discrepancies were such as to necessitate great caution in drawing inferences regarding diagnosis and treatment from a single cholesterol determination. In assessing the patient's progress, to be of significance a cholesterol level checked but once after therapy must decrease about 100 mg. per 100 cc. or there must be a lesser decrease of about 60 mg. per 100 cc. which is consistently maintained. The flood of literature recommending various agents to lower serum cholesterol should be appraised with these data in mind.

Safflower Oil and Serum Cholesterol. Since safflower oil, with an iodine number of about 143, is the most unsaturated vegetable oil available today, its effect as a supplement to the usual diet was studied. Twenty-four young men were subjects during a three-phase experiment lasting eighteen weeks. The usual diet they consumed averaged 2350 calories with 42 per cent derived from fat, the great majority of which was animal and hydrogenated vegetable fat. After a five-week control period, they were given, in sequence for six-week to seven-week periods, a placebo, and a daily dietary supplement of 75 cc. of a 65 per cent safflower oil emulsion. The safflower oil emulsion as a supplement to the usual diet had no demonstrable depressant effect on the total serum cholesterol levels. These results are not to be construed as denying the possible effectiveness of safflower oil as a supplement to diets markedly reduced in animal fat.

Feeding Children in Hot Weather. Hot weather imposes no special dietary requirements for healthy infants and children, except for an increased water intake. Although it is implied that the addition of sodium chloride to the diet might be useful for healthy infants, no evidence has been presented to support this contention. If infants and children ingesting well balanced diets do not tolerate ordinary heat stress, they should be investigated for illness rather than having their diets changed. Poor appetites and faulty eating habits may result from the uncontrolled use of cold, high-caloric drinks or foods, from failure to take adequate outdoor exercise, or from overindulgence in between-meal snacks. It is unwise for adults to condition children to dislike hot weather or to foist summertime food fads on them.

Reducing Diets. The purpose of this letter is to clarify the situation of weight reducing diets studied at the Rockefeller Institute. The first of these diets (the "Revolutionary Rockefeller Diet") used regular foods whose protein content was restricted on the assumption that a low-protein intake would reduce appetite. The scientific report of this work supported but did not prove the assumption and indicated that the diet had been unsuccessful when the patients left the hospital. The second diet (the "Crash Diet" or "Fabulous Formula") replaced natural foods by a formula mixture whose operational principle was its fixed unvarying prescription of a low-caloric intake (900 calories). The relatively low protein content which resulted was a property of the original mixture and was not a deliberate choice. The only relationship between the two diets is that they were studied in the same institution, although at different times. It has been implied that both diets were unsafe because of their low protein content; this author states that results show that patients dieting with formulas have maintained the same range of nitrogen balance as those on regular high-protein diets and have normal values in all physiologic variables tested. On the out-patient basis, weight loss in the formula-fed group was much higher than on many conventional regimens. This author concludes that the possible use of the formula diet in individual patients can be determined by the physician without unwarranted fears for its safety.

Weight Reduction. Dr. A. W. Pennington is keenly defending his thesis on weight reduction in this letter and states that an earlier article in *The Journal of the Americal Medical Association* had misinterpreted his work. Pennington's thesis on weight reduction concerns itself with the manner in which a negative caloric balance is to be brought about. He states that the evidence that his plan of treatment (a high-fat, high-protein diet), alternative to the usual one of caloric restriction, is possible and has been presented in a number of his papers. He advises anyone interested in a correct statement of his thesis to refer to his papers.

Brown Sugar. There is no known evidence that brown sugar, as purchased in the store, is not safe to eat. Brown sugar is simply a partially refined white sugar. The sucrose content used in commerce ranges from about 85 to 90 per cent and the mineral content from about 0.5 to 2 per cent—the darker the color, the less sucrose and the higher the mineral content. These minerals are chiefly calcium, phosphorus, and iron.

JOURNAL OF CLINICAL INVESTIGATION

Vol. 37, April, 1958

*Mechanism of the glucosuria produced by the administration of steroids with glucocorticoid activity. E. R. Froesch, A. I. Winegrad, A. E. Renold, and G. W. Thorn.—p. 524.

*The *in vitro* binding of cobalt^{60} labeled vitamin B_{12} by normal and leukemic sera. A. Miller.—p. 556.

Glycosuria from Steroid Administration. The mechanism of the glucosuria produced by the administration of steroids with glucocorticoid activity has been investigated in four healthy young men using a specific enzymatic method to determine glucose in blood and urine. Each subject served as his own control. Glucocorticoid administration resulted in impaired glucose tolerance and increased rate of glomerular filtration. The combination of these two factors adequately accounted for the glucosuria produced. In no instance was the maximal glucose reabsorption capacity affected significantly nor was increased glucose excretion noted at glucose loads below the maximal absorption capacity. Two patients with renal glucosuria leading to measurable urinary glucose excretion at fasting blood glucose levels were given intravenous infusions of cortisol over 10 hr. during a prolonged fast. Blood glucose increased markedly in both subjects, and urinary glucose excretion increased from 10 to 35 mcg. per millimeter and from 4 to 32 mcg. per millimeter respectively. The simultaneous increase both in urine and blood glucose levels during cortisol administration and while fasting is best interpreted as suggesting an increased rate of hepatic glucogenesis. Increased glomerular filtration contributed to increased urinary excretion. Tubular glucose reabsorption was not significantly altered. Maximal glucose reabsorption capacity in two patients with Cushing's syndrome and glucosuria was within normal limits in both instances.

Vitamin B_{12} in Leukemic Patients. An equilibrium dialysis method for the determination of the vitamin B_{12} binding capacity of serum (UBBC) has been described. The serum concentration of vitamin B_{12}, UBBC, and the total vitamin B_{12} binding capacity (TBBC) of sera from normal subjects and from patients with chronic myelogenous leukemia, other leukemias and leukocytoses have been determined. In normal subjects, the aver-

age serum vitamin B_{12} concentration was equal to 0.64 meg. per milliliter, the UBBC to 1.51 mcg. per milliliter, and the TBBC to 2.23 mcg. per milliliter. The beta-globulins bound an average of 44 per cent of the added Co^{60} vitamin B_{12} and served as chief binding protein in sixteen of eighteen subjects. The alpha-2-globulin was next in vitamin B_{12}-binding ability. In addition to an increased serum concentration of and binding capacity for vitamin B_{12} in chronic myelogenous leukemia, there is an abnormal distribution of added vitamin B_{12} among the serum protein fractions.

JOURNAL OF HOME ECONOMICS

Vol. 50, April, 1958

*The role of fat in the diet. W. D. Brewer and L. Arnrich.—p. 269.

Fat in the Diet. The dietary function of fat, fatty acid composition of fats, and the role of fat in regard to hypercholesteremia are presented. Various problems need to be considered in evaluating the implications of this area of research in nutrition education. Studies to date have been of relatively short duration, and the influence of reduction of serum cholesterol in the control or delay of arteriosclerotic heart disease has not been established. It is felt that there is a danger of creating dietary imbalances through changes in food patterns initiated on the basis of incomplete knowledge. The evidence to date indicates the desirability of teaching moderation in the use of dietary fats, selection of dietary fats from various sources including vegetable oils, and the health hazards of overweight. At present, the challenge should be for more effective nutrition education.

THE JOURNAL OF NUTRITION

Vol. 64, February, 1958

*Stepwise weight reduction in obese young men: Nitrogen, calcium and phosphorus balances. C. M. Young, A. M. Brown, E. L. Empey, and D. Turk.—p. 203.

*Influence of high-fat diets on growth and development of obesity in the albino rat. J. J. Barboriak, W. A. Krehl, G. R. Cowgill, and A. D. Whedon.—p. 241.

Metabolism in Step-Wise Reduction. The effect of step-wise weight reduction on the nitrogen, calcium, and phosphorus metabolism of eight obese young men was studied by means of the balance technique. During the prereduction maintenance period, all subjects were in equilibrium or retaining all three nutrients. With caloric restriction, both nitrogen and phosphorus retention was decreased in most of the subjects. Fewer subjects showed poorer calcium retentions. Thus there was no evidence that for men a step-wise reducing regimen eliminates the physiologic shortcomings of an uninterrupted reducing regimen. From a psychologic standpoint, six of the men felt they would prefer step-wise reduction to an uninterrupted regimen. The two who found caloric restriction most difficult felt they would have preferred uninterrupted weight reduction.

High-Fat Diets and Obesity. The growth-promoting and obesity-producing properties of certain animal and vegetable fats were studied in several rat experiments. The fats were fed at high concentration, contributing 81 per cent of the calories. The vegetable oils tested, which were corn oil, coconut oil, and cottonseed oil, did not promote growth in young rats as efficiently as lard, Crisco, margarine, or butter. In regard to the obesity-producing properties, lard and Crisco were most effective, then butter and margarine; corn oil and coconut oil were the least effective. Some cases of fatty infiltration of the aortic subendothelium and deposition of fat in livers were noted. No special lesions in relation to any of the high-fat diets could be established.

JOURNAL OF PEDIATRICS

Vol. 52, April, 1958

*Reaction of 150 infants to cold formulas. J. P. Gibson.—p. 404.

Reaction of Infants to Cold Formulas. In a group of 150 infants, cool or cold formulas were accepted by 89 per cent. Eleven infants in the group could be classified as "gassy" or "colicky." Two of the mothers were convinced that the cold formulas had "cured the colic" for their babies. In the other nine, there was apparently no change. In three other babies, not in this group, the mothers felt that the cold formulas had caused the babies to have "gas pains"; no further effort was made to give them cold bottles. This group is too small to be of significance. In 120 of the infants accepting cool or cold formulas and followed for an average of 6.7 months, development proceeded normally. All weight curves were consistent before and after the change to unheated formulas, except for seven infants who had a marked deviation upward in their weight curves coinciding with the change. No infant had a downward deviation. No harmful effects could be found in the infants accepting the cool and cold formulas.

THE LANCET

No. 7021, March 22, 1958

*Coronary-artery disease.—p. 625.

No. 7022, March 29, 1958

*Ferritin in nutritional edema. S. G. Srikantia.—p. 667.

No. 7023, April 5, 1958

*Serum-lipids and blood-sugar levels in childhood diabetes. O. H. Wolff and H. B. Salt.—p. 707.

Coronary-Artery Disease. There is so far no satisfactory evidence that the lowering of serum cholesterol, either by diet or by other means, reduces the liability to myocardial infarction. Until such evidence is obtained, there is no clear case for drastic measures, dietetic or otherwise, to reduce cholesterol levels. Strong emotional devotion to corn-oil diets will do no good. Nevertheless, it is wise to repeat to many middle-aged people, whether or not they have had a myocardial infarct, that "men dig their graves with their teeth." In Britain, the average intake of dietary fat is high and getting higher, and one can reduce it substantially without becoming a crank, upsetting the normal routine of a family kitchen, or refusing social engagements. Serum cholesterol is likely to fall if one eats sparingly of butter, cream, and pastries, chooses only the lean portions of meat, and makes fried food a luxury rather than a regular daily feature of the diet. Such moderation can do nothing but good. That we suffer from partial deficiency of essential fatty acids, and that this contributes to coronary-artery disease is no more than suggestive at present. It will be best to await new knowledge before pressing any public health measures, although the need for investigation is urgent.

Ferritin in Nutritional Edema. Edema often complicates malnutrition, but its pathogenesis is not clearly understood. Iron-protein complex ferritin can in certain circumstances exert a considerable antidiuretic effect. Two adults with nutritional edema and six children with kwashiorkor were studied. Five of the children and both adults had ferritin in their circulating blood on admission. Only two of the children had ferritin in their blood after clinical edema had disappeared. In all the cases, ferritin was absent after a month of high-protein therapy. The presence of ferritin at a stage when oliguria and edema are conspicuous and its absence after nutritional therapy appear to be significant.

Childhood Diabetes. Specimens of blood from thirty-five children, all under good or fair diabetic control, were analyzed for the blood sugar levels and for total lipid, and for the lipoproteins in three electrophoretic fractions of the serum: cholesterol, esterified fatty acid, and phospholipid. The mean levels of beta-lipoprotein lipid, cholesterol, and esterified fatty acid in the serum were significantly higher in the children with blood-sugar levels above 200 mg. per 100 ml. than in those with levels below this level. A progressive rise of beta-lipoprotein level in the serum was observed with a rising blood sugar level. The results support a hypothesis that hyper-beta-lipoproteinemia develops whenever insufficient carbohydrate is available for metabolic needs. The high levels of beta-lipoprotein and cholesterol in the serum resemble those known to precede the development of atheroma in non-diabetic persons. Although increased beta-lipoprotein has not been proved to cause the early development of arterial complications in juvenile patients with diabetes, the facts strongly suggest the desirability of maintaining normal serum-lipid patterns.

THE LICENTIATE (India)

Vol. 7, February, 1958

*Further study of some problems in nutrition and their importance in health and disease. M. L. Pai.—p. 359.

*Iron and the human body. B. D. Kochhar. —p. 373.

Some Problems in Nutrition. Nutrition has an important role in problems of health and disease related to differences in the composition of various foods and diets. In this article the procedures of cooking foods are discussed. On comparing the vitamin contents of cooked foods by different procedures, losses of vitamins were more in ordinary cooking by direct application of heat than those either by steam cooking in an ordinary cooker or steam cooking in a pressure cooker.

Iron and the Human Body. Iron is needed in the body for synthesis of hemoglobin (by bone marrow) and for cell respiration (by the tissues). The body's store of iron is rather constant. There is no mechanism for excretion of iron; iron once absorbed is excreted very slowly, if at all, except by hemorrhage or in menstruation. When blood plasma is physiologically saturated with iron, its absorption is negligible. Normal food contains roughly 10 to 15 mg. iron, only a small portion of this is in an ionizable state and can be absorbed in the body when necessary. The level of dietary iron is seldom low, but on account of several factors its physiologic availability is low. Large intake of food is needed to insure effective absorption. Absorption of iron is maximum in the presence of ascorbic acid and protein containing the sulpho-hydrate group such as milk and eggs. Ascorbic acid and the sulpho-hydrate group of proteins help conversion of iron to its reduced state. The requirement of iron is maximum during adolescence (about 15 mg. per day) and during menstruation, pregnancy, and lactation (about 20 mg. per day). There is another constant source of iron from the body itself. This endogenous supply of iron, about 25 mg. daily from the disintegration of red blood corpuscles, exceeds the exogenous supply by the food.

MILITARY MEDICINE

Vol. 122, April, 1958

Military rations. W. D. Nettles.—p. 241.

NEW ENGLAND JOURNAL OF MEDICINE

Vol. 258, April 17, 1958

*Tropical sprue. F. H. Gardner.—p. 791.

Tropical Sprue. The remarkable clinical improvement that follows folic acid therapy in tropical sprue has been the major factor pointing to a vitamin deficiency. In fact, at present folic acid remains the therapy of choice. It is difficult to accept a theory of primary folic acid deficiency because sprue is not observed in wide areas of the tropical world where the population has a marginal diet. Sprue was not noted among large groups of prisoners of war in Japanese camps in the humid climate of the Pacific despite almost starvation diets and associated vitamin deficiencies. The native population of India has had suboptimal nutrition for decades without high incidence of sprue. In contrast, in British military personnel with balanced although monotonous rations, tropical sprue was a major cause for returning soldiers to England from India during World War II. More recently sprue has been noted in American military personnel in Puerto Rico. The adequate commissary facilities of the U.S. Army allow a diet similar to that in any American home. Tropical sprue is usually observed to develop in the well fed European who lives in the tropics. Possibly the clinical course is more acute with the amount of fats used in the European and American diets. The large number of military patients in India in whom sprue has developed on a good diet continues to prevent acceptance of vitamin deficiency as a primary etiologic factor. The clinician's interpretation of nutritional defect will depend on the phase of the disease observed when therapy is instituted.

NEW YORK STATE JOURNAL OF MEDICINE

Vol. 58, March 1, 1958

*Food shapes our future. J. H. Browe.—p. 738.

Food Shapes Our Future. Food truly shapes our future directly as to our own personal health, happiness, and ability to prevent or at least postpone some of the ravages of disease or hasten recovery from illness. Food shapes our future with regard to our own shape, too, whether we are "skinny," desirably lean, or mildly or grossly overweight. We know that the markedly underweight person may have a more difficult time if he becomes sick. We also know that the person who is markedly overweight is more apt to have heart disease, diabetes, some forms of cancer, and hypertension. He is even more prone to liver troubles and appendicitis. The mortality among the grossly overweight is on the average half again as great as for people of lesser weight. There is great need to use the practical points in the scientific knowledge of nutrition to best maintain our health as we grow older because greater wisdom is necessary in cutting down on calories and at the same time maintaining an adequate intake of essential nutrients. The greatest single advance in improving nutritional status in this country rests in the hands of the individual.

NURSING OUTLOOK

Vol. 6, April, 1958

*Nutrition in the headlines. J. H. Hankin. —p. 212.

Facts for Nurses about Foods. During the past few years, nutrition research has given nurses sound information and valuable techniques for helping people improve their eating habits. First, it is now known that the public cannot be generalized and that one food pattern cannot be used for everyone. It is necessary, therefore, to have some knowledge of food values so that dietaries can be judged fairly and accurately. A knowledge of food values will also be helpful in adjusting the obese patient's dietary prescription to his food habits. Both food intake and physical activity determine body weight, and the best way to lose excess poundage is to eat a balanced diet with a reasonable caloric intake along with regular physical activity. The dental profession can be helped by explaining the ill-effects of sticky carbohydrate foods on the teeth and by suggesting raw vegetables, fruit, and milk for the after-school snack. Fatty foods need not be stressed in discussions of essential foods. Their possible involvement in coronary heart disease and their frequent association with overweight conditions suggest the need for toning down their widespread usage.

NUTRITION

Vol. 12, Spring, 1958

*Leaf protein as a human food. N. W. Pirie. —p. 17.

Leaf Protein as a Human Food. Leaves, in the form of grass, are the largest single crop in Britain. Their value is recognized, but they are fed to animals at the expense of heavy loss of protein. Mechanical separation of the components of leaves, even if it is not complete, can give without loss fractions adapted for feeding people, and residues that can still be used as cattle feed or as microbial culture media. The protein, depending on the processing involved, can take three main forms: bright green and perishable; a stable pale-colored powder; or soluble products made by partial hydrolysis. Ways in which these products can be incorporated into food are suggested. There is still much need for research in preparing a palatable and attractive product.

NUTRITION REVIEWS

Vol. 16, April, 1958

*Food faddism—why? R. E. Olson.—p. 97.

Food Faddism. Food faddism persists, despite incontrovertible scientific evidence denying its validity, because food has emotional rather than intellectual value to the average person, and the food faddists have capitalized on this, appealing to the emotional drives of their believers rather than to their intellects. Food faddism is of two general kinds. The first is individual and generally stems from psychologic aberration such as cravings for clay, chalk, and so on, during pregnancy. The second is collective and includes numerous food fallacies subscribed to by various cults or groups, such as the daily fortification of the diet with vitamins, trace minerals, and other nutrients on the grounds that these can improve health and work miracles. Food faddism can be combated by an effective program

of nutrition education which conveys sound information without minimizing the symbolic value of food. The second method is to improve the standards of the practice of clinical nutrition by physicians in our country.

OBSTETRICS AND GYNECOLOGY

Vol. 11, April, 1958

*Weight control during pregnancy achieved safely with Preludin. C. H. Birnberg and M. M. Abitbol.—p. 463.

Weight Control During Pregnancy. The usefulness of phenmetrazine hydrochloride (supplied as Preludin), a new appetite suppressant, was evaluated in a series of fifty pregnant patients. Although no diet was prescribed and the purpose of the drug was not discussed with the patients, many commented that their appetites were satisfied more readily at meals or that the general craving for food was less. With an improved sense of well-being, some spontaneously placed themselves on a reduced diet. An untreated control group was compared with the patients. Preludin was given three times a day during the third trimester of pregnancy. At the end of the study, the mean weekly weight gain of the treated group was 0.18 lb. as compared with 0.94 lb. in the untreated group. Preludin proved to be a reliable and effective anorexigenic agent, harmless to the patient and her pregnancy.

PUBLIC HEALTH REPORTS

Vol. 73, March, 1958

*Food-borne epidemic of Group A beta hormolytic streptococcus. R. E. Farber and F. A. Korff.—p. 200.

The APHA conference report. Food and diet.—p. 224.

Vol. 73, April, 1958

*Age changes in body composition. O. Mickelsen.—p. 295.

*Poisonous fishes. B. W. Halstead.—p. 302.

Food Poisoning Outbreak. In February 1957, a food-borne outbreak of streptococcal sore throat estimated to have caused over 500 illnesses occurred in Baltimore. The attack rate was 70 per cent among the 86 persons studied. The causative organism was a Group A, type 25, beta-hemolytic streptococcus. Epidemiologic investigation suggests that egg salad served at a luncheon was the vehicle, 83 per cent of those who ate the food reporting illness. The source of the infection was not ascertained. No evidence was found to support reports of the nephrotoxic potential of this streptococcal type.

Age Changes in Body Composition. Factual data on body composition are notably scarce. Most of the work has been concentrated on determination of the amount of fat. Little has been done on changes in the skeletal mass. An increase in body weight up through age fifty has been found and a decrease thereafter. There are no data indicating that weight decreases after age fifty-five. The difficulty with the reported body weights of older people is the impossibility of determining whether the decrease in weight is due to earlier deaths of the heavier individuals or represents an actual loss of weight with age. For women, the total body fat increased from 26 per cent at age twenty-five to 38 per cent at age fifty-five, while for men from 13 per cent at age twenty-five to 26 per cent at age fifty-five. Even under this stress, if it is stress, women outlive men by a significant number of years. This suggests that the secret of a long life for a body pleasantly surfeited in fat may be found by studying older women.

Poisonous Fishes. Fish poisoning is a disease of antiquity. Fish are believed to become poisonous as a result of their food habits—feeding on marine algae. There is no evidence that plankton or radioactive substances are a factor in the production of the poisons. Poisonous fishes are largely circumtropical in their distribution. They cannot be detected by their appearance, but some of the poison will be present in the viscera in about 90 per cent of the cases. Fish poisoning should not be confused with bacterial food poisoning, with which it has no etiologic connections. The over-all incidence of fish poisoning is not known. There are eight clinical types of ichthyosarcotoxism recognized at present, the majority of which are characterized by neurotoxic symptoms. Treatment is symptomatic.

QUARTERLY BULLETIN OF NORTHWESTERN UNIVERSITY MEDICAL SCHOOL

Vol. 32, Spring, 1958

*Intestinal parasitism in university students. M. M. Ray.—p. 26.

Intestinal Parasitism. Stool specimens of 132 students indicated that 62 harbored intestinal parasites. If a patient presents symptoms resembling an intestinal type of cramping pain, has recurrent diarrhea, has abdominal tenderness or mass in the right lower quadrant (especially when there is no acute appendicitis), and has traveled in areas where parasites are endemic, the physician should have the stools examined. If a competent technician is not available locally, the skill of the Public Health Service Laboratories is available. Results of stool examinations generally are more satisfactory if these stools are checked before fluoroscopy or roentenographic examinations. Many of the so-called functional diseases of the digestive tract may contain unrecognized causes, such as parasites.

THE SANITARIAN

Vol. 20, January-February, 1958

*Report of the Study Committee on Sanitation of Drinking Fountains. E. DeLouise, P. Resnick, H. Rose, R. Smith, K. Wisneski, and E. W. Mood.—p. 174.

*Bacteria in food spoilage and food infection. M. D. Appleman.—p. 177.

*Cleaning of bulk milk tanks and tankers. J. Yonts.—p. 197.

Vol. 20, March-April, 1958

*Rodent control operations in food establishments. W. Krauss.—p. 244.

Sanitation of Drinking Fountains. The National Association of Sanitarians organized a study committee to evaluate some of the local health practices and some of the attitudes of local health officials regarding public drinking fountains. Questionnaires were sent to every full-time local health department. It was found that a low percentage of communities have specific legislation for the sanitation of drinking fountains, but have only broad, general, non-specific regulatory powers over the design, installation, and maintenance of public fountains. Approximately two of every five replies received reported that the public had complained to the local health jurisdiction. Common complaints were: inadequate water pressure, dirty fountains, and unapproved design. The attitude toward aerosol contamination of drinking fountains was varying among the health officials. It was felt that this survey was a challenge for public health authorities to take stock of their attitudes and opinions.

Bacteria in Food Spoilage. Public health measures such as the chlorination of water supplies, pasteurization of milk, adequate cooking, and refrigeration of foods have decreased most food-borne infections. However, certain factors, such as the use of greater amounts of comminuted foods or of precooked frozen and semi-preserved foods, have tended to increase the handling of foods with subsequent increased infection and intoxication. Micro-organisms can grow much more readily in a prepared substrate, such as precooked foods, than in the raw product. The storage temperature of these precooked foods is a factor in rate of growth of bacteria. Other areas of food spoilage are also discussed. It is felt that there should be legal standards for foods, but that these standards should be industry-established with the companies cooperating with each other on this program.

Cleaning of Bulk Milk Tanks. The importance of preventing corrosion of metal in bulk tanks is emphasized because the success of the cleaning program depends on a smooth surface. Various cleaning problems for both bulk milk tank and pick-up bulk milk tankers are reviewed. It appears that the new cleaning techniques using spray equipment offer an opportunity to a more efficient cleaning program. Types of equipment and operation methods are presented for this method. Hand cleaning is undesirable, for the less human contact in the processing of milk. the better the quality and safety of the finished product.

Rodent Control. Rodents have plagued man since time immemorial. Many sanitarians on finding a rodent infestation, automatically recommend the hiring of a pest control operator.

This is not the entire answer. The accent should be on prevention rather than eradication. Food plant and restaurant operators must be taught the essentials of rodent control so that they can supplement the work of their pest control operator. This teaching job should be done by the combined efforts of the pest control operator and the sanitarian.

SCIENCE

Vol. 127, April 18, 1958

*Nutritive value of bread protein fortified with amino acids. A. E. Bender.—p. 874.

Vol. 127, May 2, 1958

*Effect of norleucine on the utilization of D-leucine by the rat. M. Rechcigl, Jr., J. K. Loosli, and H. H. Williams.—p. 1051.

Bread Protein Fortified with Amino Acids. Several authorities have claimed that large increases in the nutritional value of bread protein result from amino acid fortification. The error seems to have arisen from a confusion of the two terms protein efficiency ratio (gain in weight per gram of protein eaten) and biologic value (the percentage of absorbed protein retained by the experimental animal). Protein efficiency ratio is a somewhat imprecise method of measuring nutritive value as it varies with food intake. Biologic value or net protein utilization (NPU) is independent of food intake and ranges from 0 to 100. In this study, the nutritive value of bread protein fortified with various amino acids was measured using the net protein utilization. It was found that the NPU of white bread is 46 and in bread with lysine, 57. With threonine and lysine, the NPU is 70; with methionine plus these two amino acids, the NPU reaches 79. It is felt that the key to the latent protein in bread and flour is not lysine alone but three keys—lysine, threonine, and methionine.

Norleucine and Utilization of D-Leucine. This study confirmed the hypothesis that the inclusion of norleucine in the diet will greatly reduce the utilization of D-leucine by rats. This is believed to be the first demonstration of an antagonism between norleucine and leucine in mammals. The mechanism of norleucine toxicity and its reversal by leucine cannot be explained at present. Norleucine does not seem to be a natural constituent of casein or of other proteins that have been investigated.

AMERICAN RESTAURANT MAGAZINE

Vol. 42, May, 1958

*Coffee is a stimulant to a bigger business. C. R. Waid.—p. 54.

*Uniforms key to restaurant standards. C. E. Blackburne.—p. 115.

Coffee Booster. Coffee can boost business when waitresses are trained to refill cups, ask patrons if they will have coffee while waiting for their orders, and if the restaurant is a pleasant place to meet, talk business, or have a break. The coffee must be good. To be sure that it is, urns and equipment must be spotlessly clean and the brew prepared correctly to please the taste of those who like it heavy and rich and those who enjoy a light cup. In any case, the flavor must be there and will be proved in the transparent, golden color that seems to shine while being poured. Good coffee plus good service pays dividends in return business and reputation.

Uniforms. Successful restaurant men have long recognized that an operation is gauged largely on the appearance of its employees. Employee uniforms must be neat and clean and crisp. To keep up uniform standards, have a fully equipped, locked control room in the charge of a person who appreciates the importance of keeping the linen count. Garment hangers should be issued to employees or provided in lockers. Sizes of uniforms should be clearly marked and a sufficient stock of uniforms carried at all times. Have a dry airy place for keeping soiled uniforms until they are picked up by the laundry. Make lists giving sizes, number, and colors of uniforms for the launderer, and see that the clean, returned uniforms agree with the list. Management may want to supply each waitress with two uniforms at the beginning of the season and leave the laundering up to the girls. This plan is less expensive and is approved by most waitresses. A rule of thumb is that linen expenses should run 1.3 to 1.7 per cent of volume or 25 to 30 per cent of controllables. In a small place where the waitresses must wash a few dishes and work the grill or steam table as well as serve customers, expenses will be higher.

COLLEGE AND UNIVERSITY BUSINESS

Vol. 24, April, 1958

*A half-century leap in kitchen planning. Sister Stella Marie.—p. 38.

Progress in Kitchen Planning. A Minnesota college has recently completed new kitchen and dining facilities for its students. These facilities include: an 80 by 100 ft. dining room, cafeteria service area, completely tiled large unbroken kitchen area, separate kitchen storage area, dishwashing facilities, and vegetable-meat-dairy storage area. A laundry and rough preparation area is also separate, as are the trash and disposal rooms. The whole is laid out along work flow lines and planned to specific needs. Everything in the kitchen is on wheels unless built right into the floor or hanging from the wall. The effect of the new plant on employees has been very good. Only two additional employees were needed, and much less student help is now used to operate a much larger and more efficient food service. The new plant has provided the means, space, and tools to create far more interesting and varied menus. As a result there are almost no complaints about food.

FOOD ENGINEERING

Vol. 30, April, 1958

*Can worker attitude studies give you the answers? I. C. Miller.—p. 65.

*Cure that cures instability.—p. 114.

Worker Attitude Studies. One way to learn how good your company communications are is to measure morale factors, especially absenteeism and turnover. Accidents, grievances, and production rate are also indicators. General communications may be evaluated this way, but the job being done by a specific publication, such as the company magazine, is best checked by an attitude survey. Such a survey can provide management with valuable information on a variety of subjects, in addition to the specific publication. The survey generally is written, although sometimes it is taken in interview form. Most attitude surveys are anonymous. Some cost less than 50 cents per employee, but they may range up to $20 or $30 per return. Interview surveys cost more; however, they may reveal more. Such surveys cannot be effective or yield true and honest cross-sectioned opinion, unless questions are honestly phrased and clear, and unless it is evident that management is sincere in wanting the workers' cooperation. Specialists in attitude survey work can easily determine whether answers are honest and frank. Where employees believe that the company will try to act on their honest answers, attitude surveys are reliable indicators.

Cure for Instability. A new free-flowing cure for hams stabilized with ½ per cent silica gel now offers packers uniform curing and color development with either liquid or dry formulations. Silica is a powerful dehydrating agent recently approved for use in curing compounds. The successful cure of hams and picnics by one processor is cited as proof of the practicality of this meat cure. Silica gel is claimed to take the guesswork out of the curing process by coating and dehydrating the individual cure particles. It continues to absorb moisture even after the cure is exposed to air. As a result, the powdered product remains free flowing and readily dissolves in water or brine. Used dry, it spreads evenly in the chopper, eliminating the possibility of under- and over-curing. Except for the addition of silica gel, the cure is a standard type.

HOSPITAL MANAGEMENT

Vol. 85, May, 1958

*The future of electronic cooking in hospitals. C. M. Goff.—p. 121.

Electronic Cooking in Hospitals. The electronic range is not only a cooking unit, but it represents a streamlined type of food service. It also reduces the need for heavy cooking equipment and permits an unhurried assembling of portions on plates. It allows the user to effect a good portion control and provides a greater degree of control over waste. Ultra-high frequency

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waves can give stale foods the feel, taste, and aroma of freshly cooked ones. It can allow for quicker, cheaper, and more efficient special service for special patients. A university professor predicted recently that electronic cooking equipment in the hospital will eventually eliminate set meal hours and cut down on money and personnel. Employee cafeterias will disappear, and automatic vending machines will sell to the employee whatever he needs in disposable cups, dishes, and utensils.

HOSPITAL PROGRESS

Vol. 39, April, 1958

*Planning menus for religious communities. H. Zaccarelli.—p. 97.

Menus for Religious Communities. The foods that can be served in a religious community will depend on such factors as the type of individuals in the institution, the amount of money allowed, availability of foods, storage facilities, plus staff and equipment for food preparation. To avoid monotony in planning menus, it is a good idea to give members of the religious house a chance to suggest foods that they like. Including one food each day that someone has asked for will not ruin the menus and it is unlikely to throw costs out of line. Interest can be added to meals by making festive occasions of holidays and feast days and once in a while changing the type of service. Picnics, buffet service, and the like will surely spark interest. Well balanced attractive meals are possible if they are planned in advance. Avoid rotating weekly menus in entirety, but have a general meal pattern to follow to be reasonably sure that the proper nutrients are being supplied. Serve simple fare; plain, well cooked, and attractively served foods usually are more acceptable than fancy or mixed foods. Provide each meal with contrasts in texture, flavor, and color and include foods with "staying power." Try to fit leftovers into other meals as soon as possible. A list of inexpensive entrées and a list of dishes for fast days accompany this article.

HOSPITALS

Vol. 32, April 16, 1958

*Food service and dietetics. D. Johnson.—p. 44.

Vol. 32, May 1, 1958

*Who's responsible for what? F. C. Sutton.—p. 32.

*Nutrition education for the patient's wife. E. E. Gussak.—p. 70.

Food Service and Dietetics. In a discussion of food service and dietetics today, the questions of the administrator's support and new work methods and equipment are brought to the forefront. Many writers and observers are maintaining that greater administrator support will be evidenced when a qualified dietitian with administrative ability is the head of the dietary department. Given support from her administrator in cooperation, in equipment and supplies, and in salaries to attract good employees, such a dietitian can operate a department to rival or excel that of any food service management concern. The prevailing feeling about labor and equipment problems is that dietitians must continue to study both. Since labor promises to continue scarce and expensive, dietitians will remain interested in work simplification procedures, applying the solutions of industry to their departments. The use of automatic equipment and the selection of the proper system—one that is correct and custom tailored to the hospital's needs—concern administrative dietitians, especially in expanding, new, or changing departments. Beyond food production, therapeutic nutrition and education are carried on by dietitians. In this connection, every department should endeavor to have a diet manual, and a program of education for the teaching of patients, medical and nursing students.

Accountability to the Administrator. Hospital management cannot be effective without a well conceived plan providing for accountability. One of the best methods of such accounting is the regular scheduling of personal conferences with individuals to whom authority and responsibility for results have been delegated. However, accountability is effective only if an organized plan is observed which insures comprehensive review. Such a plan might be actuated in quarterly written reports from department heads. These reports would consist of an outline of the most important departmental accomplishments of the past ninety days, and a list of the chief objectives for the ninety days ahead. Administrators, in their interviews with department heads, should not accept rationalizations for results. Employees should be made to realize that hard, honest work, delegation of work to subordinates, supervision by a hospital committee, and problem reports, do not in any way relieve them of responsibility. The evaluation of performance can only be effective where achievement of objectives is possible. However, failure to obtain that which is reasonably agreed upon should be clearly understood as failure and never glossed over. Accountability is the essence of any appraisal plan. Emphasis should rightly be placed on the results obtained and never on minor incidental situations which have occurred along the way. In fairness to the individual—and for best results—accountability should be kept broad.

Nutrition Education for Wives. The response to a New York VA hospital's nutrition education program has been very good. This program includes wives who attend nutrition classes with their husbands before the patient's discharge, and who attend individual nutrition conferences with their husbands and the dietitian at the time of the patient's discharge. Wives are also encouraged to consult the nutrition clinic while the patient is at home. At class sessions, slides are shown and there is a discussion of the foods which may be included on the diet as well as suggestions for preparation. In individual conferences, emphasis is placed on the importance of cooking vegetables properly, the inclusion of milk and dairy products in the diet, and the contribution of enriched or whole grain bread and cereal products, and meat and meat substitutes. Where spices and herbs are permitted, suggestions are made for their use. Since all diets are modifications of the normal diet, emphasis is placed on the Basic 7, and with some diets suggested recipes are included. Most modified diets handled in the clinic are sodium-restricted, bland, and diabetic diets. Visual aids used in the individual conferences help discussions of relative portion sizes of important foods. Models also illustrate the importance of color combinations in the meal. Samples of food products, such as low sodium canned vegetables and unsweetened canned fruits, are also used so that different types of food labeling can be explained to the homemaker.

INSTITUTIONS

Vol. 42, May, 1958

*Eliminating hidden operating costs. G. C. Weaver.—p. 14.

*The role of the supervisor in safety. E. F. Ahern.—p. 16.

*Study nature of personnel problems.—p. 24.

*Booklet details care, preservation of china.—p. 46.

*Basic principles for on-the-job training. J. W. Stokes.—p. 56.

*There's a future for electronic cooking. J. R. Bechtel.—p. 72.

*Sanitation for food service worker. W. H. Haskell.—p. 138.

*Guide to soft-served ice cream. P. H. Tracy.—p. 148.

Hidden Costs. Any piece of equipment that can reduce service time, conserve labor, control product quality and portion, and control cash expenditures and receipts is a device that will assist in eliminating hidden costs. Such devices might include: new seating arrangement and seating equipment to increase turnover; or, a conveyor belt to eliminate bus boys and cut down on waitress labor. Buried costs concealed by careless bookkeeping are often hidden operating costs comparable to poor food processing habits which cause waste through outmoded and unintelligent work patterns.

Supervisor's Safety Role. The supervisor's role begins with his attitude toward his job and fellow employees. To begin with, he must be interested and concerned about safety. He must be an alert observer, and trained in writing reports as well as a good investigator. He must be familiar with the employees, know their names, and be able to converse with them freely. His human relations skills are not all that are necessary, however. He must also have the faculty for organizing a safety program and getting the cooperation of the employees.

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Personnel Problems. Personnel problems are the food service industry's number one problem. Finding employees of satisfactory caliber is the foremost industry headache. In non-union cafeterias, selection of supervisors is the second largest problem; in union houses, this problem rates third. Turnover and training of service personnel rank high on the lists of both union and non-union cafeterias' lists. Grievances are far down the list, in both types of operation. The fact that problems are weighted differently between union and non-union houses suggests that neither unionization nor the lack of it has solved management's personnel problems. In the industry as a whole, turnover among all classes of employees is relatively high. Training programs for key personnel are more or less commonplace in successful operations. Training for unskilled and semi-skilled workers is casual and informal. Formal training programs have reportedly cut labor turnover in half, as compared with turnover recorded for organizations without formal programs. Practices most commonly used to keep employees informed are: the bulletin board, employee magazine, employee meetings, and suggestion systems. The fact that the industry has not kept up with other industries in providing fringe benefits for employees is cited as one reason for instability of the restaurant working force.

Preservation of China. A few of the basic rules to be followed in handling institutional china are: do not strike two pieces of ware together; do not stack too high; avoid nesting cups; don't slide one plate across another under pressure. Dishes will last longer if you cut down as much as possible on handling, since human hands are the source of almost all breakage. Wherever possible, let equipment take over for human handling. Poor dish bussing is the beginning of breakage. To correctly bus dishes provide a bus box for cups, bowls, jugs, and so on, and a separate one for platters, saucers, plates, and silverware. Have employees stack, not dump. Semi-mechanical rinsing machines can cut down on breakage at the pre-rinse, scraping stage.

Training on the Job. Valuable job instruction principles are presented. (a) In preparing an employee for instruction, put him at ease and emphasize the importance of correct performance. (b) Explain how the job should be done properly and point out key points that make the operation easier. (c) Let the employee go through the procedure himself and correct errors. (d) After he is on his own, check up and assign someone to whom he can turn for help. Training should be continuous; some may be given on-the-job instruction, others encouraged to take courses in food service management. It will be helpful to good administration if an operating manual is prepared setting forth various duties and responsibilities, schedules, wage rates, accounting procedures and forms, lists of equipment, layouts, prices, and special services.

Electronic Cooking. The electronic range has been put to the test and found practical. In a report given by a dietitian working in the Southwest, it is revealed that one electronic range used to supplement other equipment has proved convenient, work saving, and time saving. Especially good in preparing and cooking "special orders," the range is cited as a future basic kitchen necessity and the focal point of hospital tray service. In streamlining the food service, it permits an unhurried assembling of portions on plates, allows the user to effect a good portion control, and provides a greater degree of waste control.

Sanitation. All pests—rodents, flies, cockroaches, and others—may be controlled by these general methods. (a) Repair of screen breaks, window cracks, doors, wall cracks, damaged ceilings, floors, and chimneys. (b) Repair openings around wiring, piping, fans, vents, and flues. (c) Maintain spic-and-span cleanliness and good housekeeping. (d) Use poisons and chemicals carefully. Rats play a part in the transmission of the following diseases: food poisoning and food infection, infectious jaundice, bubonic plague, endemic typhus fever, ratbite fever, and trichinosis. Control of rats can be accomplished by ratproofing buildings as mentioned above, by removal of the rats' food supply, by removal of harborage and nesting places, and by trapping and poisoning.

Soft-Served Ice Cream. The term "soft-served product" refers to an ice milk that is a frozen product with less fat than that required for plain ice cream. Soft-served products normally contain 30 to 50 per cent overrun. Overrun results from the air whipped into the product during freezing. Composition of "soft-served products" usually breaks down into the following: 3 to 6 per cent fat, 11 to 14 per cent non-fat milk solids, 12 to 15 per cent sugar, 0.3 to 0.5 per cent stabilizer, and 0.1 to 0.2 per cent emulsifier. Some state regulations set forth the minimums for butterfat. Some also regulate the size of container, labeling, display signs, and the addition of color or flavoring material. This article gives information on marketing, making, and selling "soft-served" and hard ice cream products, including information on equipment.

THE MODERN HOSPITAL

Vol. 90, May, 1958

*Your employes should know what they're talking about. F. K. Lockerby.—p. 80.

*Hospital is the dietitian's finishing school. G. E. Miller.—p. 110.

*Training program for dietary employes. J. Hartman and S. W. Knox.—p. 116.

Employees as a Medium for Policy. Since all employees interpret the hospital to the public at some time, they must know what hospital policy is, why it is, and how to explain it. Gossip, rumor, careless talk can ruin a hospital's reputation. To prevent these disrupting influences, clear lines of communication within the hospital must be maintained. Conduct for all employees should be exemplary, and to aim for that goal, the administrator must take measures to insure that all employees understand the responsibilities of their jobs and their place and function in the organization. Only an atmosphere of mutual respect and shared purpose guarantee the receptive and understanding-response of employees to the communications and directives which transmit information, clarify policy, and make clear those points which could become objects of conjecture and gossip. For this reason the administrator must be very careful about his written communications and make every effort to see that text, timing, and tone are suitable and effective to his purpose.

Dietitian's Finishing School. The responsibility for making the young dietitian a "finished product" rests with the administrative dietitian who should provide a well organized staff development program. Such a program would aim to teach skills and modify behavior. A "finishing" program is deemed necessary since the changed tempo of our times demands more skill and knowledge from the worker in a shorter time and without the benefits of the long indentures and guild training. The author points to industry training programs as evidence of this felt need for continued training and the type of training solution found most practicable in the twentieth century. It is pointed out that psychologic maturation is very important and should be considered one of the ends of such a program. It is the responsibility of the administrative dietitian to discover that set of traits, discipline, and incentives which will best mold and bring out the professional personality of the dietitian.

Training for Dietary Employees. Topics suggested here for four training sessions include: (a) know your hospital dietary department; (b) personal hygiene; (c) sanitation; and (d) food handling techniques. An outline and bibliography covering these course sessions are given.

NRA NEWS

Vol. 1, May, 1958

*Ruffley speaking—on the essence of good taste—flavor. J. J. Ruffley.—p. 19.

Good Taste. Food flavor panels are now employed by many progressive food manufacturing concerns and also by certain restaurant groups. This again points up the fact that more and more, flavor is coming to be considered the crucial element in the success of any one food. Two types of taste panels are in general use: the consumer preference panel consisting of a large cross-section of people, and

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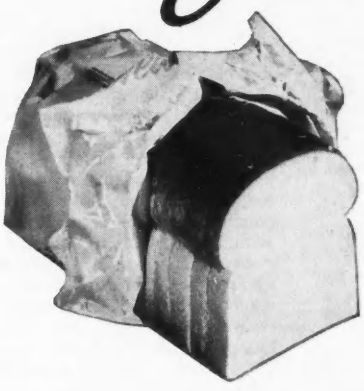

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the judging panel consisting of about a dozen "taste experts" who analyze the subtle differences in tastes. The four components of taste—sweet, sour, salty, and bitter—plus the odor of the food (which can be fragrant, spicy, putrid, burned, ethereal, or resinous) give food its flavor. Additional factors, such as texture, temperature, and appearance, influence the food's acceptability. Food which is completely fresh generally has its full complement of natural flavors, and therefore will furnish a good criterion of taste quality. The preservation of quality in fresh foods stored by various methods is helped by the use of salt, sugar, vinegar, and spices. The types of products used in flavoring foods can be classified as follows: natural spices—whole or ground; alcohol and other solvent solutions of essential oils or oleo-resins; essential oils; emulsions; soluble seasonings which are essential oils or oleo-resins on salt or sugar carriers; vegetable protein derivations — protein hydrolysates; and synthetic flavors—artificial or imitation. To enhance the flavor and prestige of food, the operator should purchase only the best quality available, store it properly, and cook it only by procedures which have proved enhancing. The use of correct flavor components — salt, sugar, vinegar, pepper, spices, and other materials—and the use of a taste panel composed of key employees will further insure good taste.

PERSONNEL JOURNAL

Vol. 36, March, 1958

*Supervising the supervisors who report to you. H. T. Rosenberger.—p. 365.

Vol. 36, April, 1958

*Any job can be measured by its "know, think, do" elements. E. N. Hay.—p. 403.

*To select executives — combine interviews, tests, horse sense. J. G. Phelan and G. W. Smith.—p. 417.

Relationship of Chief and Supervisors. The chief who has first-line supervisors reporting to him must be especially aware of his supervisors' problems in bridging the big gap between management and workers. He must recognize that his first-line men have a difficult task, and he should show all supervisory members of the staff that he appreciates the situation. It is well for a chief periodically to sit down with the supervisory members individually and tactfully appraise their supervisory potential. In these individual interviews the chief should ask leading questions but, for the most part, these should be indirect and phrased to encourage the supervisor to talk and open up—not to put him on the spot.

Job Measurement Technique. A job can be measured by its "know, think, and do" elements. That is: what the person who holds the job is required to *know* in order to deal with its problems, how much *thinking* he will be required to do, and the amount and scope or *do* element of his actions. The "action," or visible results, of two different jobs may be compared by the measuring and weighing of: the freedom to take independent action under certain limitations and having a certain type of impact on a certain area of definitely known size. Where there is more freedom of action, greater consequences over large areas of the business domain, there lie greater responsibility and higher rating. Where know-how is concerned, it has been found that four categories are sufficient for comparison: experience gained on the job—vocational or practical knowledge; specific knowledge normally obtained by study; human relations skills; and skills on the managerial, administrative, or consultative levels. In trying to rate a job according to the thinking skills required, consider first the environment which indicates the restrictions placed on freedom to reach decisions while at the same time indicating the requirement which must be met. Consider also the kind of thinking necessary, from rote memory, through adaptive and analytical thinking, to a high level of creative thought. In every job it is necessary to know certain things, to think and to solve problems, and finally to do something to accomplish the object of the job. These three job aspects can be broken down for comparison purposes, thus making it possible to rate high-level jobs.

How to Select Executives. The authors suggest a combination of tests, interviews, and common sense evaluation as an effective method of selecting executives. Tests should be given to determine scholastic achievement and intelligence, aptitude and ability, attitude and interest, and personality. Tests such as the "Sentence Completion" and "Thematic Apperception" tests can be used to uncover hidden attitudes which may make trouble later. From the scrutiny of his background and after a look at the aptitude tests, the things to look for in interviewing and evaluating can be isolated. A new kind of interview, "the indirect interview" is recommended to help pull out the information needed in making a final evaluation. Using this type of interview, it is possible to consider at one time more variables than might be possible by other methods. The interviewer concentrates on why the man did various things at important turning points of his life. He considers no event in the candidate's background too unimportant to be considered. The interviewer says as little as possible, makes himself a sympathetic listener, and asks only broad, general questions which give the candidate wide latitude in answering and expressing himself. An atmosphere of complete informality is created so that the candidate will be encouraged to reveal himself.

RESTAURANT MANAGEMENT

Vol. 82, April, 1958

*Workmen's compensation—when does it apply? A. W. Gray.—p. 57.

Voila! Heinz Ketchup changes 'good' to...'great'!

• **Bravo! Ole! Wunderbar!** That's what chefs say in every language about the magic ingredient of volume cooking—Heinz Ketchup!

• **Heinz costs so *little*—**yet is so *effective* in sparking up almost any recipe. It's uniformly good—that's why good cooks everywhere depend on Heinz Ketchup—and why Heinz Ketchup outsells *all* other kinds.

• **The two recipes below** are two ways that chefs "cook with Ketchup—HEINZ to be sure." Try 'em soon—and *you'll* become a cook-with-Heinz booster.

Heinz 57 ***You know it's good because it's Heinz!***

FASOULIA

SERVINGS: 48 (¾ cup each)

PRODUCTS: Magic Onions, Tomato Soup, Ketchup

INGREDIENTS	WEIGHT	MEASURE
*Magic Onions	1½ ozs.	1 cup
Water		1 cup
Ground beef or lamb	8 lbs.	
Shortening		¼ cup
Salt		¼ cup
Heinz Condensed Cream of Tomato Soup, undiluted		1 51-oz. can
Heinz Tomato Ketchup		1 quart
Cooked green beans	5½ lbs.	1 gallon

Cover onions with water; allow to stand 20 minutes. Brown beef and onions in shortening. Add salt and remaining ingredients. Heat.

*1 quart chopped, fresh onions may be substituted; omit water.

JAMBALAYAH

SERVINGS: 50 (¾ cup each)

PRODUCTS: Magic Onions, Tomato Soup, Ketchup, Worcestershire Sauce

INGREDIENTS	WEIGHT	MEASURE
Green shrimp	12½ lbs.	
*Chopped Magic Onions		1¾ cups
Water		3½ cups
Celery, chopped	2 lbs.	2 quarts
Green pepper, chopped	1 lb., 6 ozs.	5 cups
Shortening	8 ozs.	1 cup
Heinz Condensed Cream of Tomato Soup, undiluted		3 51-oz. cans
Heinz Tomato Ketchup		1 quart
Heinz Worcestershire Sauce		¾ cup
Salt		1 tablespoon

Cook shrimp; remove shells; devein. Cut in half lengthwise. Cover Magic Onions with water; allow to stand 20 minutes. Cook celery and green peppers in shortening until tender. Combine shrimp, vegetables, soup and remaining ingredients. Heat over low heat or in steam-jacketed kettle. Serve over hot, fluffy rice.

*7 cups chopped fresh onions may be substituted. Omit water.

HUBBERT

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For small batch cooking, we suggest Model DTK, with its full steam jacket to provide fast and even distribution of heat over the entire cooking surface. Ideal for thawing and cooking of frozen foods. Table top design saves space. Mirror buff finish for easy cleaning.

We also make a diet kettle with steam supplied by a fully automatic self-contained gas or electric fired system that is very efficient.

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SINCE 1903

HUBBERT

1311 PONCA ST., BALTIMORE 24, MD.

*Twelve tips for the busy waitress. J. Damon.—p. 58.
*What coffee studies show.—p. 69.

Workmen's Compensation. In some recent court decisions concerning Workmen's Compensation, the court ruled that injuries suffered not as a direct result of working, but while on the job were valid and the injured party eligible for compensation. Thus a waitress, injured while fighting with a chef, was awarded compensation. A worker who playfully challenged a gas burner and suffered injury was also awarded compensation. The court's position in these cases was this: that the law and legislature did not intend to punish a workman for a playful shove, an angry curse, or an impulsive act. Where the act resulting in injury does not arise out of a privately motivated purely personal feud, out of willful misconduct, or out of a willful intention to injure, it is not for the court to read a new exception covering aggressors, into the clear and unequivocal text of the Workmen's Compensation Act. The court's position in short, was that an employee is not an automaton, and even when he is highly efficient, he will to some extent deviate from the uninterrupted performance of his work.

Tips for Waitresses. Every waitress should be impressed with the fact that customers are not only people, but friendly people, and she should have no inferiority complex in relation to her customers. She should dress neatly and appropriately, know her station, and should know how to greet a customer and let him make up his mind about ordering. When taking the order, she should stand close enough to hear correctly, and she should never guess. She should also place all necessary accessories on the table, then go to the kitchen to place the order. Next, she must make sure that the chef understands the order completely. After she has placed a customer's first food item before him, she should look at her five fingers to be reminded that five things are on the table: salt and pepper, bread and butter, napkins, water, and the right silverware. Experience will teach the waitress to know when her orders are ready; and, when picking them up, she should make sure that they belong to her—not to someone else. When the kitchen runs out of an item, she should explain to the customer that this is because the restaurant buys or cooks in small amounts in order to serve fresh food. She should offer either a substitute or his money back if the customer leaves much food or if he is dissatisfied with the quality.

Coffee Needs Improvement. Although the price of coffee has consistently risen since 1953, consumption has dropped 18 per cent from 1953-56. The first turn upward in sales in five years came last year, although most of this increase was simply due to growing population. Along with the increase in price per cup, restaurants since 1953 have made a 23 per cent reduction in the amount of coffee used in brewing. Reduction in quality has contributed both to less consumption and less restaurant traffic. A campaign is now under way to make homemakers more conscious of better coffee. The Coffee Brewing Institute is supporting the need for consumers to rediscover good coffee—not only in the home but in public eating places. Such a campaign may eventually improve coffee and contribute to greater restaurant traffic.

SCHOOL LUNCH JOURNAL

Vol. 12, April, 1958

*Our knowledge of nutrition is not being put to work. J. H. Hilton.—p. 16.
*Georgia students learn connection between food and growth. L. Cannon and M. L. Brooks.—p. 30.

Putting Nutritional Knowledge to Work. People in the U.S. are not using the information concerning foods and diets which is now available to them. There has been a failure of conversion of nutrition information into forms which will motivate people. Studies made on the national scale of food intakes of families show a certain proportion of the commonly eaten diets are inadequate in regard to one or more of the essential nutrients. Particularly vulnerable to ill health through bad or poor nutrition are teen-age girls, mothers, pregnant women, and aging people. To correct this situation, nutrition education must be re-evaluated and a new approach taken. More attention should be paid to ethnic, environmental, economic, and social origin of the individual groups. The effect of a working mother on the nutritional level of the family should be studied. Food preparation techniques and processes should be studied with a view to evaluating changes that take place in the food values. If educational programs are to accomplish more widespread acceptance of nutritionally valuable foods, family living patterns must be studied. Ways of reaching lower income groups must be devised, and ways of reaching school children, working women, and the male population must be forthcoming.

Food and Growth. An animal feeding experiment with rats has proved successful in a nutrition education program conducted on the elementary school level. Student interest was great, and as a result, a public health nurse was invited to the school to make hemoglobin tests on the boys and girls. A number showed deficiencies, and with this personal interest in their own nutrition adding enthusiasm, the program was expanded to active student participation in the rat feeding which was begun by a teacher. As the project progressed, each class participated according to its particular interest: one planned, prepared, and served a breakfast; another prepared a celery and carrot tray for nibbling at the morning recess; and another painted pictures of

For Speedier Return to Normal Nutrition

Meat...

and the Protein Depletion of Severe Infectious Disease

Recovery from severe infectious processes entails more than emergence from the effects of the causative agent. The semistarvation, the inactivity, the suppression of physiologic activity must all be corrected as rapidly and thoroughly as can be tolerated by the patient.

Return to normal nutrition can be speeded by an easily digested diet high in top quality protein and vitamin-mineral components.

Lean meat serves several purposes in such a program: It supplies easily digested protein of highest biologic quality for rapid re-establishment of nitrogen balance; it provides the gamut of B vitamins as well as certain minerals important to sound nutrition, and it brings appetite-stimulating flavor to meals, a consideration not to be underestimated in the psychic rehabilitation of appetite.

The nutritional statements made in this advertisement have been reviewed by the Council on Foods and Nutrition of the American Medical Association and found consistent with current authoritative medical opinion.

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16

a good meal combination and made clay models of the Basic 7 foods. Reading charts and displays were made by other classes. One of the outcomes of this program has been greater interest and understanding by parents in nutritional needs and in problems of the lunch program.

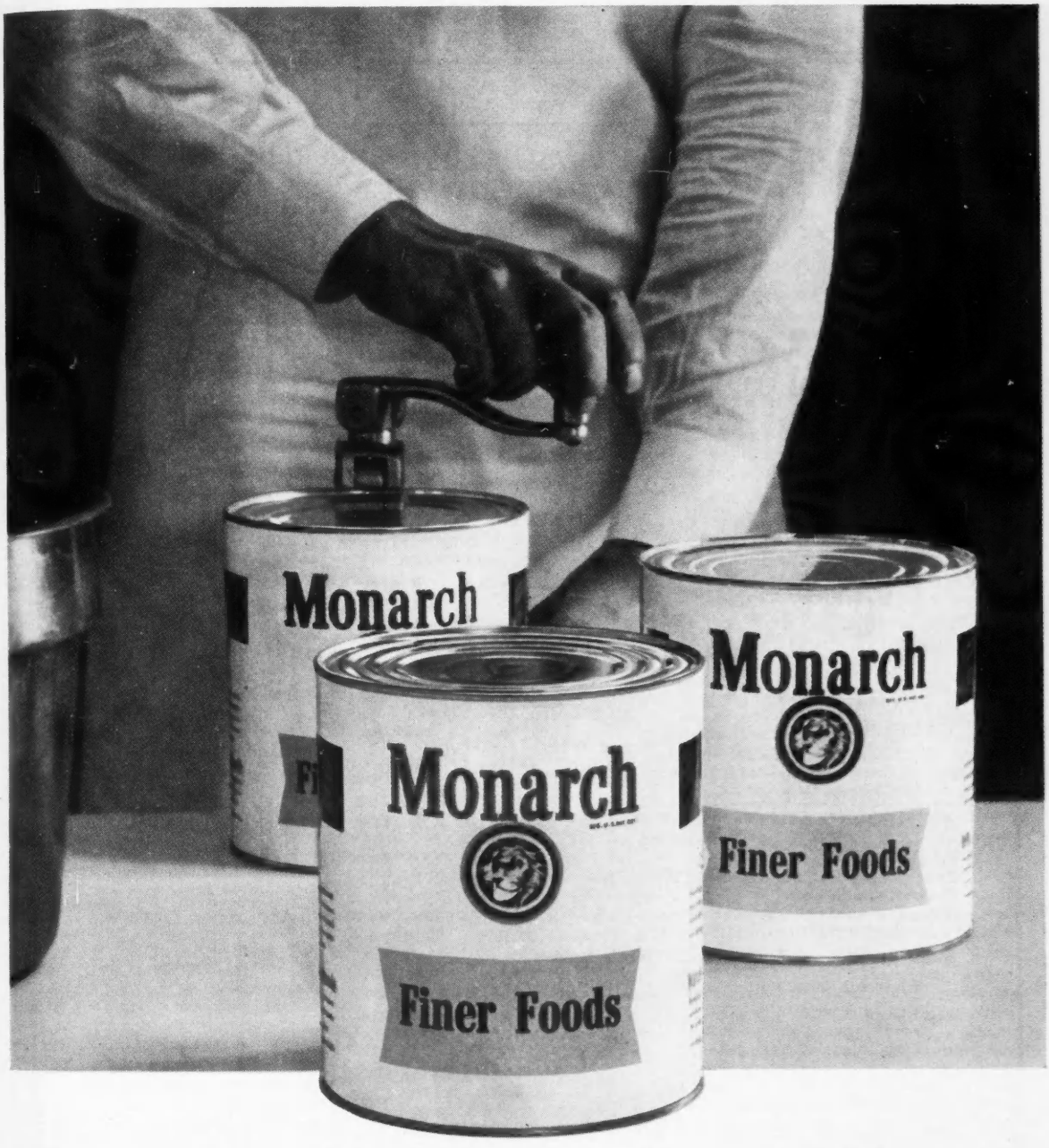
VOLUME FEEDING MANAGEMENT

Vol. 10, April, 1958

*Low-cost lamb cuts make good eating.—p. 18.
*Refrigerators and freezers.—p. 38.

Lamb. There are three important rules in cooking low-cost lamb: (a) cook according to the cut; (b) always use low temperature; and (c) avoid overcooking. Leg, shoulder, rib, and loin cuts are usually roasted in dry heat. Chops are broiled, pan or griddle broiled, or fried. Cuts such as shanks, breasts, riblets, stew meat, and neck slices should be cooked by moist heat. Always serve lamb hot—very hot—or cold. Garnish and season lamb with: wine, lemon, Worcestershire, and soy sauce. Use fruit sauces, spices, and herbs. Cheese is also good with lamb. A flavorful glaze for lamb is made of mashed mint or current jelly spread on the roasting meat about ½ hr. before removing from the oven. There are special lamb dishes from many foreign countries which are fast becoming favorites in America. Low-cost lamb recipes, special cooking fillips for lamb, and several good sauces for lamb are given with this article.

Refrigeration. Greater accessibility is the mark of modern refrigeration. The point-of-use concept of refrigeration is an example. Decentralization allows refrigerators to streamline kitchen work flow patterns, by locating supplies at the point of preparation. There is a tremendous variety of shapes and sizes to fit the right unit to the right job. In keeping with the versatile floor set-up, the interior compartmentalization of new refrigerators is flexible and adaptable. Self-contained models hold their own compressors and can be installed anywhere ventilation is available. Space is required between these units and back walls. Top mounted compressors allow the refrigerator to be butted against walls or other equipment with no special consideration needed for ventilation. Some refrigerators are built to take the punishment of hot surroundings and can be operated in temperatures up to 100°F. Special refrigeration adaptations to modern usage now include: refrigerators equipped with food file units, wheeled refrigerators, two-temperature units, under - counter units, refrigerated drawers, and refrigerated glass display cases. In all of these, streamlined design makes cleaning easy. Coved corners and seamless interiors eliminate dirt-catching crevices. Refrigerators on cantilever legs are also available to permit cleaning underneath.



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Philadelphia • October 21-24, 1958

For your convenience in making hotel reservations for the coming meeting of THE AMERICAN DIETETIC ASSOCIATION October 21-24, 1958 in Philadelphia, hotels and their rates are listed below. Use the form at the bottom of this page, indicating your first, second and third choice. Because of the limited number of single rooms available, you will stand a much better chance of securing accommodations of your choice if your request calls for rooms to be occupied by two or more persons. All reservations must be cleared through the Housing Bureau. ALL REQUESTS FOR RESERVATIONS MUST GIVE DEFINITE DATE AND HOUR OF ARRIVAL AS WELL AS DEFINITE DATE AND APPROXIMATE HOUR OF DEPARTURE, ALSO NAMES AND ADDRESSES OF ALL PERSONS WHO WILL OCCUPY RESERVATIONS REQUESTED *MUST* BE INCLUDED.

Hotel	Single	Double	Twin	Suites
ADELPHIA	$ 6.50 up	$ 9.00 up	$12.00 up	$25.00 up
BARCLAY	10.00	14.00 up		30.00 up
JOHN BARTRAM	4.50 up	7.50 up	9.00 up	25.00 up
BELLEVUE-STRATFORD*	8.00 up	12.00 up	12.00 up	30.00 up
BENJAMIN-FRANKLIN*	7.00 up	10.00 up	14.00 up	30.00 up
DRAKE	7.00 up	10.00 up	13.00 up	20.00 up
ESSEX	4.50 up	7.00 up	9.00 up	22.00 up
NORMANDIE	5.00 up	7.00 up	8.00 up	18.00
PENN SHERWOOD	6.00 up	10.50 up	10.50 up	15.50 up
ROBERT MORRIS	5.00 up	8.00 up	9.00 up	
ST. JAMES	4.75 up	7.00 up	7.50 up	15.00 up
SHERATON	8.50 up	13.00 up	15.00 up	30.50 up
SYLVANIA	5.50 up	9.50 up	9.50 up	20.00 up
WARWICK	11.00 up	14.00 up	14.00 up	22.00 up

(*) Headquarters hotels

In the event that the hotel room rate structure is changed prior to the above convention these rates will be changed accordingly.

ALL RESERVATIONS MUST BE RECEIVED PRIOR TO: September 20, 1958

American Dietetic Assn. Housing Bureau
Convention & Visitors' Bureau
Penn Square Bldg., Juniper & Filbert Sts.
Philadelphia 7, Pa.

Please reserve the following accommodations for: THE AMERICAN DIETETIC ASSOCIATION Convention in Philadelphia, October 21-24, 1958.

Single Room_____ Double Bedded Room_____ Twin Bedded Room_____

Other Type of Room_____

Rate: From $_____ to $_____

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Arriving at Hotel (date) _____ hour _____ A. M. _____ P. M. Leaving (date) _____

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THE NAME OF EACH HOTEL GUEST MUST BE LISTED. Therefore, please include the names of *both* persons for *each* double room or twin bedded room requested. Names and addresses of all persons for whom you are requesting reservations and who will occupy the rooms asked for:

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(Individual Requesting Reservations)

Name _____

Address _____

City and State _____

If the hotels of your choice are unable to accept your reservation the Housing Bureau will make as good a reservation as possible elsewhere provided all hotel rooms available have not already been assigned.

About Your Annual Meeting—October 21-24

Philadelphia—Twixt the Schuylkill and the Delaware

A.D.A.'s podium will hold the notes of many a recognized authority at the forthcoming Annual Meeting. With the prospect of good talk, serious talk, and important talk on the horizon, you may want a few indicators to help your receptivity. Thus, in accord with your wishes, we present the names of a number of persons who will need no introduction.

Leland J. Mamer, Director of Buildings, Engineering Assistant to the Executive Director of St. Luke's Hospital, New York City. Mr. Mamer will speak on the key to sanitation, safety, and service.

Richard D. Vanderwarker, Vice-President and General Manager, Memorial Cancer Center, New York City. Mr. Vanderwarker will talk on the art of decision making.

Genevieve Stearns, Ph.D., Research Professor, Department of Orthopedic Surgery, State University of Iowa, Iowa City. Dr. Stearns will discuss the feeding of the child and will stress the variation in nutritional requirements at different ages.

Charles G. Roswell, Director, Hospital Services Division, United Hospital Fund, New York City. Mr. Roswell plans to suggest how financial records can be interpreted in the hospital dietetics department.

Eleanora Sense, Ed. D., Teaching Dietitian, Chicago Wesley Memorial Hospital, will be a panelist on the round-table discussion of desirable experiences in nutrition for the nursing student.

Jean Mayer, Ph.D., ScD., Department of Nutrition, School of Public Health, Harvard University, Boston. Dr. Mayer will discuss the relationships of appetite, exercise, calorie intake, and proteins.

G. Donald Whedon, M.D., Chief, Metabolic Diseases Branch, National Institute of Arthritis and Metabolic Diseases, Bethesda. Dr. Whedon will speak about renewed interest in research on human energy metabolism. He will report on studies thus far completed and on other projects in the field. Important questions now being investigated in energy metabolism related to nutrition will be presented to his audience.

James A. Reyniers, Research Professor, Bacteriology, Lobund Institute, Notre Dame University, Notre Dame. Mr. Reyniers will discuss germ-free animals in nutrition studies.

Philip White, Sc.D., American Medical Association, Chicago. Dr. White will speak on development of special purpose foods for use in diet therapy.

Charlotte Young, Ph.D., Professor of Medical Nutrition, Cornell University, Ithaca. Dr. Young will discuss interviewing in dietary surveys.

Martha F. Trulson, Sc.D., Department of Nutrition, Harvard University School of Public Health, Boston. Dr. Trulson will give a critical review of the various methods used in making dietary surveys for correlation with various diseases.

Marjorie M. Heseltine, Chief, Nutrition Section, Division of Health Services, Children's Bureau, Department of Health, Education and Welfare, Washington, D.C. Miss Heseltine will discuss the role of the dietitian and nutritionist in community programs.

Charles Glen King, Ph.D., Executive Director, The Nutrition Foundation, Inc., New York City. Dr. King will present latest findings in nutrition research.

Fredrick J. Stare, M.D., Ph.D. Dr. Stare will bring us up to date on diet and atherosclerosis.

A panel considering the problem of training the nonprofessional staff member will include *Mary M. Griffin*, Dietitian, Department of School Cafeterias, Board of Education, Newark, New Jersey.

PRE-VIEWING—PRODUCTS '58

Here is an advance glance at products you'll see at exhibits when the curtain is raised on the Annual Meeting. Many are old familiars, sponsored and produced by friends who will be playing an important role in the Philadelphia conclave. Others may be found excitingly new. Certainly all will deserve your considered appraisal.

Corn Products Refining Company will present a new recipe for Mazola corn oil spread which you are invited to taste-test.

Food Machinery and Chemical Corporation will display a new model 103 FMC utensil washer and cut-away units of their FMC jet disposer in a working exhibit of interest.

Eli Lilly and Company sales people will be on hand to welcome your questions about Lilly products and recent therapeutic developments.

Market Forge Company will present a new wide-model steam cooker and the automatic Mark-Fore, as well as other products.

Savory Equipment, Inc., has arranged for the unveiling of a new disc pellet heater for use in centralized food service facilities.

Kellogg Company will offer dietitians a 1958-59 memo-calendar at the display of Kellogg products.

National Biscuit Company will present a number of varieties of crackers individually wrapped: Premium Saltines, Ritz Envelopes, oyster crackers, wafers, and cookies.

Aervoid Vacuum Can Company will show several new products, one of which is a soup dispenser for transporting and serving soup through a faucet.

National Live Stock and Meat Board will feature an exhibit showing new calculations on the food values of meat. Nutrition education materials will be distributed.

American Dry Milk Institute, Inc., plans to present a display showing proved and new uses for nonfat dry milk.

Webster Van Winkle Corporation will introduce a new item, Miracle Chef, a churned buttermilk made from sweet cream. The product promises new uses in cooking.

Quality Bakers of America Cooperative, Inc., will display its line of breads, rolls, and cakes bearing the Sunbeam trademark.

Wyandotte Chemicals Corporation will show Salute, a machine dishwashing compound: Poreen, a concentrated rinse booster; Fame, a low use-cost hand dishwashing compound; plus control instruments and service tips.

Pet Milk Company will present illustrated educational publications showing the use of Pet evaporated milk and Pet instant nonfat dry milk.

Sparta Brush Co., Inc., will greet you with a display of food service brushes constructed of plastic blocks and nylon bristles. You'll see brushes for ovens, kettles, coffee urns, and pot and pan clean-up.

W. B. Saunders Company, publisher, will arrange a browsing session for you. The booth will feature books on nutrition and related fields.

National Dairy Council representatives will introduce you to the "Guide to Good Eating," a basic nutrition teaching tool available as a chart, leaflet, and handout. Other nutrition education materials dealing with weight control, infant feeding, teenage and geriatric nutrition will be made available to registering dietitians.

Unit-Packet Corp. will show a new Packet brand wedge containing crushed crystals of pure lemon flavor for use in flavoring drinks, tea, fish, and sauces. Other Packet brand individually packaged servings of condiments and garnishes will also be displayed.

J. B. Lippincott Company, publisher, will also be represented with a display of professional books and journals for dietitians.

The list of products which will be displayed at exhibits this year is long, and our preview is by no means inclusive. The variety and number of interesting things you'll see can again be appreciated in our preview next month.

New A.D.A. Treasurer. Mary C. Zahasky, Director of Dietetics, University of Oklahoma Medical Center, Oklahoma City, has been appointed to fill the unexpired term of Treasurer of The American Dietetic Association, following the resignation of Frances L. Low. The appointment was made by the Association's Executive Board, according to the provisions of the Association's Constitution.

Mrs. Zahasky is a graduate of Framingham (Massachusetts) State Teachers College and has done graduate work at Teachers College, Columbia University and New York University. She took her dietetic internship at Queen's General Hospital, Jamaica, New York. During World War II she served as an Army dietitian overseas. Prior to her appointment to the staff of the University of Oklahoma Medical Center, she was Administrative Dietitian, Memorial Hospital, Worcester, Massachusetts.

Miss Low, who is Director of Dietetics, The Methodist Hospital, Houston, tendered her resignation to the Association with regret, and made the following comment for publication in the JOURNAL: "Watching the growth and development of The American Dietetic Association and seeing it gain in status as a professional organization is one of the great privileges I have enjoyed since becoming a member in 1926. Another privilege has been the opportunity of working for the Association at local, state, and national levels. It was with pride that I accepted the office of Treasurer, and it was with regret that I have found it necessary to resign that office. This does not mean that my interest will be diminished. I shall continue to be mindful of the aims and purposes of the Association and to contribute in every way that I can to their achievement."

New Officers of A.D.A. for 1958-59. The following will be the elected officers of The American Dietetic Association for the coming year:

PRESIDENT—LeVelle Wood, Chairman, Division of Institution Management, School of Home Economics, The Ohio State University, Columbus

PRESIDENT-ELECT—Doris Johnson, Ph.D., Director of Dietetics, Grace-New Haven Community Hospital, and Assistant Professor, Department of Public Health, Yale University School of Medicine, New Haven, Connecticut

SPEAKER OF THE HOUSE OF DELEGATES—Ercel S. Eppright, Ph.D., Head, Department of Food and Nutrition, Iowa State College, Ames

SPEAKER-ELECT OF THE HOUSE OF DELEGATES—Edith A. Jones, Chief, Nutrition Department, Clinical Center, National Institutes of Health, Bethesda, Maryland

TREASURER—Mrs. Mary C. Zahasky, Director of Dietetics, University of Oklahoma Medical Center, Oklahoma City

SECRETARY—Margaret L. Ross, Ph.D., Professor of Nutrition and Director, School of Home Economics, Simmons College, Boston

DELEGATES AT LARGE

Fern W. Gleiser, University of Chicago—1959

Gertrude E. Miller, Veterans Administration Center, Los Angeles—1960

Lorraine G. Weng, National Dairy Council—1961

NOMINATING COMMITTEE

Geographic Area I—Miriam E. Lowenberg, The Pennsylvania State University, University Park

Geographic Area II—Frances O. Hazzard, Confederate Memorial Medical Center, Shreveport, Louisiana

Geographic Area III—Grace L. Stumpf, The Ohio State University Hospital, Columbus

Geographic Area IV—Floy Eugenia Whitehead, D.Sc., State University of Iowa, Iowa City

Geographic Area V—Marguerite L. Pettee, University of Colorado Medical Center, Denver

A.D.A. Receives Legacy. The Amerı-Dietetic Association has received a legacy of $250 from the estate of Estelle N. Nesbitt. According to the provisions of Miss Nesbitt's will, this sum will be applied to the Graduate Loan Fund of the Association. Miss Nesbitt, who died in April 1957, had made her home in Gulfport, Florida for ten years prior to her death. During her working life, she had spent some time teaching in China's Peking University, and after her return to the U. S., served on the staff of the Indiana Board of Health. She was a graduate of the University of Illinois, and had taken a dietetic internship at the Johns Hopkins Hospital, Baltimore.

Dietitian Wins Recipe Award. In the monthly recipe contest conducted by *Inplant Food Management*, a dietitian, Patricia M. Kilp of the Prudential Insurance Company, Minneapolis, has won an award for her recipe for "Tuna Noodle Crisp Casserole." This monthly award carries with it a prize of $25 and an attractive award plaque. The contest, which has been running since May 1957, is now in its second year and is open to managers, chefs, dietitians, cooks, or other supervisory personnel in inplant cafeterias.

International Congress on Home Economics. From July 28 to August 2, the campus of the University of Maryland will be the scene of the Ninth International Congress on Home Economics. More than a thousand home economists from thirty-three countries are expected to attend this first meeting in the U.S. in the fifty-year history of the International Federation of Home Economics. Both the American and Canadian Home Economics Associations will serve as hostesses.

Keynote speaker for the Congress will be Carlos P. Romulo, Philippine ambassador to the U.S. His subject will be: "The Social and Economic Problems of the World Today." During the week, other program offerings will include:

"Social, Scientific, and Technical Information Required for Effective Education in Home Economics"—Gudrun Akre, Norway

"The Role of Research in Obtaining Fundamental Data"—Dr. Hazel K. Stiebeling, United States

"Application of Home Economics Knowledge"—a symposium headed by Helen Benitez, The Philippines. Speakers will include representatives from New Zealand, Japan, Lebanon, and Canada

"The Contribution of Home Economics to the Position of Women in the World Today"—Mlle. J. de Luget, France

"The Contribution of Home Economics to the Social and Economic Life of the Family"—Maria Socorro Lacot, Puerto Rico

"The Contribution of Home Economics to the Social and Economic Program through Expanding Careers"—Mrs. B. Tara Bai, India

A pre-Congress tour in the U.S. and a post-Congress tour in Canada have been planned to show visitors how and where home economists work in the two countries. Mildred Horton, Executive Secretary of the American Home Economics Association, has been named Congress Director.

Catholic Hospital Association. The Fourth Annual Institute for Hospital Dietitians was conducted in conjunction with the 43rd Annual Convention of the Catholic Hospital Association in Atlantic City. The Institute, held on June 22, 23, and 24, included programs on kitchen planning, new foods, emergency feeding, safety, nutrition for the aged, management of diabetes, and new developments in diet therapy.

Institute for AMSC Officers. From May 18 to 24, more than thirty Army officers attended the seventh semi-annual Institute for Officers of the Army Medical Specialist Corps. The Institute was broken into general sessions, attended by all participants, and workshop programs in professional trends, for which the group was divided to attend separate meetings according to the specialties of physical therapy, occupational therapy, and dietetics.

The general sessions covered such subjects as "Place of Communica-

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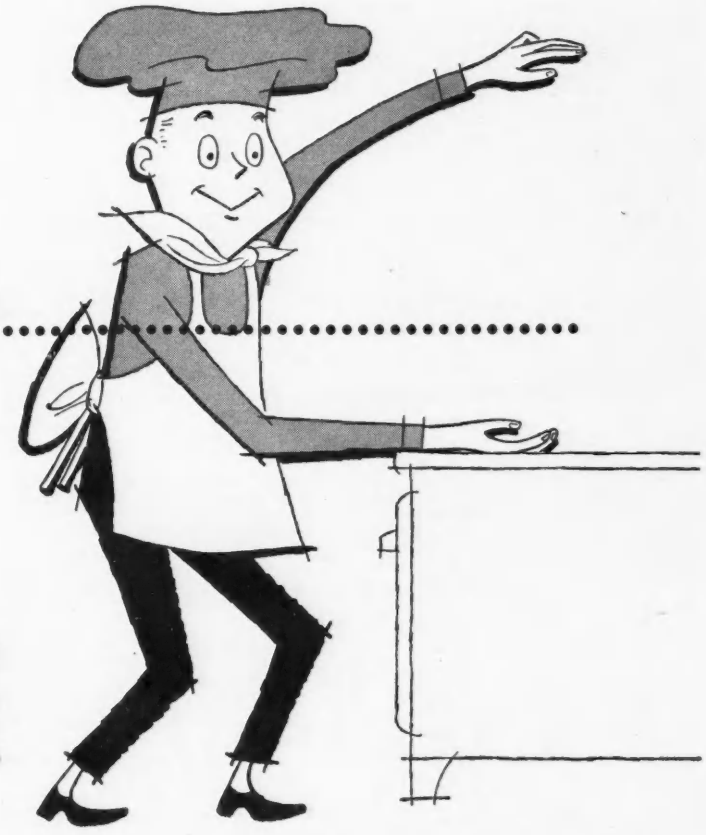

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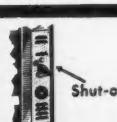

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tion in Organizational Relations," "Developing Skills in Others," "Factors in Training Supervision," and "Supervisor - to - Group Communications." The workshop program for dietitians was conducted by Lt. Col. Helen M. Davis, head of the Dietitian Section of the AMSC.

Southeastern Hospital Conference. On May 14, 15, 16, the 21st Annual Assembly of the Southeastern Hospital Conference was held in Miami Beach, Florida. The program of the section meeting for dietitians featured a number of stimulating talks and papers, including:

"The Dietitian in the Hospital Team"—Pat N. Groner, Administrator, The Baptist Hospital, Pensacola, Florida, and President, Southeastern Hospital Conference

"The Effect of Saturated and Unsaturated Fats in Relation to Dietary Treatment of Atherosclerosis"—George T. Harrell, M.D., Dean, College of Medicine, University of Florida, Gainesville

"Foods, Fads, and Fallacies"—Marjorie Morrison, Chief Nutrition Consultant, Florida Department of Health, Jacksonville

"Open Doors"—Adelia M. Beeuwkes, School of Public Health, University of Michigan, Ann Arbor

"Our Profession"—E. Neige Todhunter, Ph.D., Dean, School of Home Economics, University of Alabama, Tuscaloosa, and A.D.A. President

"An Introduction to the Problem of Obesity"—Leonard Weil, M.D., Miami Beach

"Meal Service Is Public Relations"—John L. Sutton, Passenger Superintendent, Delta Air Lines, Inc., Atlanta

Health Program for Aged. A Joint Council to Improve the Health Care of the Aged has been formed and will be sponsored by four of the leading health organizations in the U. S.: American Dental Association, American Hospital Association, American Medical Association, and the American Nursing Home Association. The program of the Council will be designed to: (a) increase opportunities for older people to obtain voluntary health insurance coverage; (b) expand health care facilities tailored to the needs of the aged, regardless of economic status; and (c) develop more community health services for the aged. Dr. Edwin L. Crosby, Director, American Hospital Association, will serve as Interim Secretary of the Council.

Government Publications. *Marketing Meat-Type Hogs — Problems, Practices, and Potentials in the United States and Canada* is the title of a new U.S.D.A. Marketing Research Report No. 227. The production and marketing of meat-type hogs, the report explains, is one of the more important problems in American agriculture today. The declining demand for lard has cut the money value of fat for lard. Whereas around 1900, fat from lard was worth almost as much as lean cuts, today the lean cuts are worth two and a half times as much. There has also been a declining demand for pork, especially in relation to competing meats. These facts are indications that a leaner, meatier type of hog is urgently needed in the U.S. to increase pork consumption. When a team of specialists visited Canada in October 1957 at the suggestion of a Congressional subcommittee, they found the average quality of Canadian market hogs very high by our standards. About 71 per cent of the Canadian market hogs would grade U.S. No. 1, and about 26 per cent, No. 2—most of them in the top half of the grade. The Canadians appear to have almost eliminated the U.S. No. 3 from their supply of market hogs. This situation is the result of a system of compulsory live grading maintained in Canada from 1928 to 1940. In 1929, 35 per cent of Canadian hogs were of what was then called "butcher grade" (relatively fat hogs). By 1940, the percentage had dropped to 8.2. Comparable increases in the production of leaner grades of hogs took place during the same time. In Canada now, meat packers pay price differentials between grades two and a half or three times wider than have been thought possible in the U.S.

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Undersized or inadequate toasting equipment creates service delays and appetite appeal may be destroyed unless toast is served crisp, fresh and hot.

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Sanitary PREAM Packets cost less per serving than cream — more economical than half-and-half!

Creaming hot drinks with cold liquid cream can quickly make them lukewarm and unappetizing to your patients.

But modern hospitals — like the major airlines—have learned how to serve a steaming hot, deliciously-creamed cup of coffee every time. They use ever-fresh PREAM, in individual packets, wherever cream is desired.

PREAM dissolves instantly and adds rich cream flavor . . . *but doesn't cool off hot drinks!* Hospital patients appreciate the fact that Pream won't spill, won't spoil. It's a 100% pure dairy product, pasteurized and homogenized, but keeps indefinitely *without refrigeration.*

PREAM Packets save your food budget dollars and help your kitchen run smoother. They are light, easy to store, and completely eliminate the washing, sterilizing (and breakage) of pitchers and creamers.

Send today for a sample box of individual PREAM Packets. Try PREAM, and see how your patients appreciate really good, really *hot* coffee.

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Yes, I would like free samples of Pream Packets, to measure patient acceptance and serving economy.

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These wider price differentials, it is felt, are made practicable in Canada by added processing and standardization of wholesale cuts. This report points out that with uniform and universal grading as practiced in Canada, and with price differentials equivalent to those paid farmers by Canadian meat packers, even greater progress in improving hog quality could probably be achieved here. Copies of this report may be obtained from the U.S.D.A.'s Office of Information, Washington 25, D. C.

Production and Marketing Practices for Mellorine—A Study of the Marketing of Frozen Desserts has been prepared by the Agricultural Marketing Service as Marketing Research Report No. 212. Mellorine is the name commonly given to frozen desserts made with fats other than milk fat. Such desserts have been made and sold in twelve states during the past decade, and in 1956 production totaled 33 million lb., compared with 651 million lb. for ice cream. Production of mellorine in recent years has been increasing at a slower rate than at the beginning. The low price at which it can be sold in comparison with ice cream has been an important factor in its growth. Mellorine production processes are nearly identical with those for ice cream, the most important problems being those of overrun and shrinkage, which are common in the production of frozen desserts generally. Copies of this report may be ordered from the Government Printing Office, Washington 25, D. C., for 45 cents each.

Booklet on Child Feeding. From the Merrill-Palmer School we have received a copy of a new sixteen-page booklet, *"The Child's Meals Are Family Meals"* by Mary E. Sweeney, Ll.D., and Marietta Eichelberger, Ph.D. Practical suggestions for making meals for the family which also serve for the children are included, as well as short discussions on hunger and children's food needs. The four-food-group system of planning meals is explained and illustrated by a guide for a day's meals, as well as sets of menus for two days. Several pages are devoted to "The Why of Food for Children" and discussion of the needs for milk, protein foods, vegetables and fruits, bread and cereals, and other foods. A final section considers "Some Factors Affecting the Child's Attitude Toward Food." Copies may be requested from The Merrill-Palmer School, 71 Ferry Avenue East, Detroit 2.

New Publications. Two new booklet releases of note are: *The Role of Dietary Fat in Human Health* from the Food and Nutrition Board; and *Relation of Proteins and Amino Acids to Nutritional Health* by the Council on Foods and Nutrition of the American Medical Association.

The first, *The Role of Dietary Fat in Human Health*, was prepared by the Food and Nutrition Board's Committee on Fats in Human Nutrition. This publication reiterates the stand taken by most investigators that a review of available information on the subject does not provide sufficient data to make firm recommendations on dietary changes at this time. In fact, major changes in American dietary habits are not to be recommended, the committee feels. The publication presents a summary of dietary fat consumption; the chemistry, metabolism, and nutritional role of food fats; possible relation to cardiovascular disease; the consumer's position; and the needs for research. The material is presented in seven chapters: "Fat in the National Diet"; "Chemistry of Food Fats"; "Fat Metabolism"; "Nutritional Role of Food Fats"; "Cardiovascular Disease and Dietary Fat"; "Whither the American Consumer? A Summation"; and "Need for Expanded Research on Fats." A bibliography of 139 references is also included. This publication is National Academy of Sciences—National Research Council Publication 575 and may be ordered from the National Research Council, 2101 Constitution Avenue, Washington 25, D. C., for $1 a copy.

Relation of Proteins and Amino Acids to Nutritional Health presents six papers given originally at a sym-

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TAKING
STOCK
IS GOOD
BUSINESS
If you're in business, you take inventory at least once a year. It's essential to the health of your business to know where you stand. But have you taken stock of yourself recently? Do you know where you stand when it comes to cancer?
A once-a-year health checkup can tell you.
The chances of curing cancer are far greater when it is detected early and treated promptly. Living proof are the 800,000 Americans who *have been cured.*
Yet lung cancer now kills 24,000 men annually...eight times as many as twenty years ago. And thousands of these deaths could have been prevented *if the cancer had been diagnosed early and treated promptly.*
That's why it's vital for every man to have a health checkup every year, including a chest x-ray. Further, if a cough or hoarseness lingers for more than two weeks – one of cancer's danger signals – an immediate visit to the doctor is indicated.
Give yourself the same break you give your business. Take that personal inventory regularly – have a health checkup every year.
AMERICAN CANCER SOCIETY

posium held in Los Angeles on May 21, 1956. These papers are: "Nitrogen Balance and the Nutritive Value of Proteins" by James B. Allison; "Role of Vitamins in the Metabolism of Amino Acids" by Otto A. Bessey; "Role of the Digestive Tract in the Utilization of Protein and Amino Acids" by E. S. Nasset; "Amino Acids and Protein Requirements of Infants" by Edward L. Pratt; "Role of Hormones in Protein Metabolism" by Robert E. Olson; and "Kwashiorkor in Children and Its Response to Protein Therapy" by Nevin S. Scrimshaw, Moisés Béhar, Guillermo Arroyave, Carlos Tejada, and Fernando Viteri. The symposium was sponsored by the Council on Foods and Nutrition with the cooperation of the Los Angeles County Medical Society and the School of Medicine, University of California, Los Angeles.

Interns Graduate. At the *VA Hospital, Bronx, New York*, eight dietetic interns will complete their year's work on July 14. The graduates are:

Harold Brice, Southern University, Baton Rouge, Louisiana
Flor M. Fronzaglia, Mt. Mercy College, Pittsburgh
Nancy J. Gayhart, University of Wisconsin, Madison
Kathleen Martin, Drexel Institute, Philadelphia
Constance L. Miller, Iowa State College, Ames
Shirley L. Minkler, Drexel Institute, Philadelphia
Rose M. Randazzo, Cornell University, Ithaca, New York

Army Personnel. The following appointments, promotions, and separations of dietitians have been announced by the Army Medical Specialist Corps:

APPOINTMENTS AND ACTIVE DUTY

Capt. Christine Connolly
2nd Lt. Angela R. Raguso

REGULAR ARMY APPOINTMENTS

Capt. Mary L. Blundell
1st Lt. Mary P. Dwyer
1st Lt. Patricia E. Mooney

PROMOTIONS

Major to Lieutenant Colonel
Winifred G. Riley
Barbara M. Ryan

Captain to Major
Dorothy E. Jones

1st Lieutenant to Captain
Annie F. Kennedy
Edith R. Kirkland
Betty J. Sandblom
Jeanne Sherburne
Mary C. Sullivan

2nd Lieutenant to 1st Lieutenant
Ann L. Curtis
Doris J. Durey
Sara N. Duvall
Alice L. Kelson
Barbara B. Kinman
Anne B. Lewis
Geraldine Linenberg
Beverly I. Lutz
Loa F. Olson
Patricia A. Pramik
Mary J. Renfro
Barbara F. Rushing
Miriam Stanford
June Waters
Florida A. Wilder
Anna J. Wilson

RESERVE OFFICERS RELIEVED FROM ACTIVE DUTY

1st Lt. Mercedes Berrios
2nd Lt. Doris E. Duke
2nd Lt. Laura N. Eller
2nd Lt. Cora B. Holliday
2nd Lt. Aida L. Lopez
2nd Lt. Nancy L. Webb

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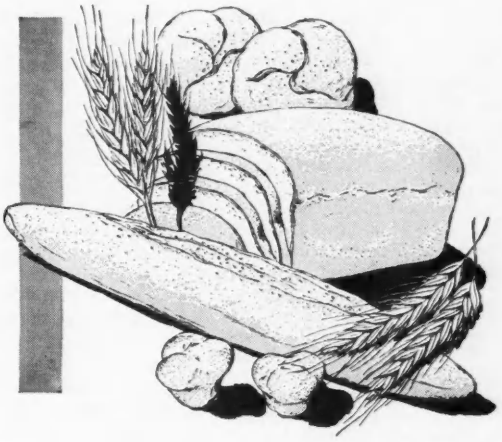
News of State Associations

Arkansas Dietetic Association. On March 26 and 27, the Arkansas Dietetic Association sponsored an institute for food service supervisors at the University of Arkansas in Little Rock. Co-sponsors included the State Board of Health, the Arkansas Hospital Association, and the University's Division of General Extension. Topics which were covered included modified diets, menu planning, and food purchasing. So that the material presented might be available for future use, the lectures were recorded. Some fifty dietitians and food service supervisors attended.

California Dietetic Association. California dietitians were greatly pleased

FLOUR FOR MAN'S BREAD*



A Brief History of Milling and Baking by SCIENCE WRITER

CHAPTER XVIII *Early Purifiers*

What Millers Must Do

As described in the preceding chapter, the miller is faced with a most difficult problem. After first cleaning wheat berries, he must actually take them apart, separating the bran and germ from the endosperm or starchy core.

To give an idea of the difficulty of separating the bran from the endosperm, let's imagine that we have a quantity of ground black pepper mixed with table salt which we must separate. It's easy to conceive the trouble this would cause but it is simple compared with the miller's problem. Unless the bran is removed, his white flour will have poor color and other unsatisfactory qualities.

Better Ways Are Found

In the long evolution of milling techniques, gradual improvement was made in removing the bran. Flat sieves, drum sieves, reel sieves were used. Then it was found that air currents in combination with the sifting process were most efficient.

The use of air currents in milling is an ancient practice. Consider winnowing, in which grain is tossed into the air, thus allowing the lighter wheat husks and dust to be blown away while the kernels fall to the ground. It was a natural step to bring controlled air currents into the mill.

They "Purified" The Flour

Early in the 19th Century an Austrian miller, Ignaz Paur, invented a machine to purify middlings. At this point in our story, two definitions are in order. As used by millers, to *purify* means to winnow and sift simultaneously by mechanical means. The word, *middlings,* describes the starchy part of the wheat which has been partially ground. Bits of bran may be mixed with, or adhering to, the middlings.

In Paur's device, ground flour was graded through a sieve, after which it was subjected to a controlled current of air. The bran, being lighter, was carried off in the air streams; the heavier flour particles dropped into collecting bins. Although far from perfect, Paur's device was a step in the right direction. Over the years, experiments were made with various types of purifiers. Some used gravity and air; others employed centrifugal force and air. Better methods resulted, so that the largest possible amount of white flour was extracted from the wheat.

The Dangers Of Dust

The early purifiers had a serious shortcoming: the air blast filled the mills with fine dust. Workers developed "miller's cough," as well they might in such an atmosphere. More serious were the explosions and fires which broke out mysteriously. These destructive blasts were caused by the dust itself which was highly explosive and reacted instantly to any spark such as might be struck accidentally by millstones which were allowed to run dry.

It Must Be White

Family *white* flour . . . *white* bread and rolls are mighty popular foods. Our preference, by a wide margin, is for the *white* variety. Naturally, millers and bakers give us what we want. But flour, milled to the whiteness we demand, has unavoidably lost much of wheat's vitamin and mineral content in the milling. The answer to this problem has been *enrichment* of family white flour and white bread and rolls with vitamin B_1, vitamin B_2, niacin (another "B" vitamin), and iron.

Enrichment is really a simple process. The miller adds a dry mixture of vitamins and iron to the flour during processing. Or, the baker, if he uses unenriched flour, adds the enriching ingredients to the dough. In both methods, the essential vitamins and iron are thoroughly distributed throughout the foods, thus giving us vital nutritive elements known to be necessary to our good health.

A world leader in the production of pure, low cost vitamins by the tons, Hoffmann-La Roche is proud that its vitamins, widely used in milling and baking for enrichment, contribute to our well-being.

This is one of a series of articles which is being published in professional nutrition and dietetic journals, and which will be widely distributed for educational purposes. Reprints of this and all previous chapters are available without charge. Write to the Vitamin Division, Hoffmann-La Roche Inc., Nutley 10, New Jersey. In Canada: Hoffmann-La Roche Ltd., 1956 Bourdon Street, St. Laurent, P. Q.

The next chapter titled: "What Happened at the Falls of St. Anthony" will be published soon.

*This is the title of a definitive history by John Storck and Walter Dorwin Teague, published by the University of Minnesota Press at Minneapolis and copyrighted by the University of Minnesota. It is used with permission as a source of material for this series of advertisements.

Enriched with vitamins and iron for better nutrition

when Governor Goodwin J. Knight proclaimed the week of May 11 to 17 as "Dietetics Week." Activities and publicity throughout the state were planned to bring to the public the urgent need for recruiting young people into the profession. In Sacramento, dietitians toured the Governor's mansion, giving special attention to the kitchen. In other areas of the state, radio talks, television appearances, and newspaper publicity were means used to point up the proclamation.

Colorado Dietetic Association Madelon Redmond, a senior at Colorado State University, Fort Collins, has been named the Louise Poley Scholar for 1958. Miss Redmond will receive an award of $150 as an aid toward her internship in dietetics at Colorado State Hospital, Pueblo, which she begins this month.

Kansas Dietetic Association. The eighth annual workshop for hospital food service personnel sponsored by the Kansas Hospital and Dietetic Associations was held at Kansas State College, Manhattan, on May 12 and 13. The program included discussions on food buying, motion and time economy, menu planning, quality food, nutrition, safety and sanitation in the kitchen, and working with people.

Louisiana Dietetic Association. Officers of the Southwest Louisiana Dietetic Association for 1958-59 will be: President, Joan R. Richmond, Lake Charles Memorial Hospital; President-Elect, Betty M. Brantley, consultant dietitian, Lake Charles; and Secretary-Treasurer, Barbara B. Campbell, St. Patrick's Hospital, Lake Charles.

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PLUS years of research and actual field experience from the company which originated and perfected this food service.

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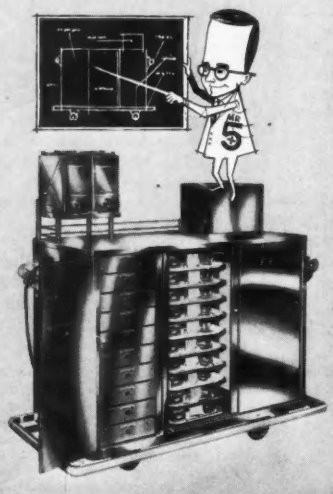
TRAINING ASSISTANCE for your dietary staff in your hospital is just one of the many distinct advantages of the 5+ Plus Meals-on-Wheels System. Expert counselors help to train your staff in the use of the simple-to-operate Meals-on-Wheels Hot 'N Cold delivery units—help plan personnel assignments, work simplification, kitchen work flow and fast, accurate tray assembly with portion control.

MR. 5+ PLUS SAYS: "The Meals-on-Wheels System means accurate, low-cost food service, better care for your patients with timetabled, dependable feeding schedules throughout your hospital. It's my job to help you achieve just that."

And remember Mr. 5+ PLUS is as close as your nearby Meals-on-Wheels representative.



Meals-on-Wheels System

Dept. A-3, 5001 East 59th St., Kansas City 30, Missouri

Maine Dietetic Association. On May 3, members of the Maine Dietetic Association met in Portland at the Maine Medical Center. The program included:

"Diet as the Medical Social Worker Looks at It"—Edward McGeachey, Director of Social Service and Outpatient Departments, Maine Medical Center

"New Trends in Diet Therapy"—Janet Packard, Director of Food Clinic, Beth Israel Hospital, Boston

Maryland Dietetic Association. On May 3, the Maryland Dietetic Association met in Baltimore to hear Dr. E. Neige Todhunter, A.D.A. President and Dean, School of Home Economics, University of Alabama, speak on "Our Profession Moves Ahead." Dietitians from surrounding states were invited to be guests at this meeting, as were home economics students majoring in dietetics in Maryland colleges.

Michigan Dietetic Association. "Dietetic Week," proclaimed by Michigan's Governor G. Mennen Williams as April 13 to 19, was highlighted by a "Communications Conference" scheduled by the Michigan Dietetic Association as the theme for their annual spring meeting at East Lansing, April 16 and 17. Demonstrations, lectures, and group discussion were some of the techniques used to implement the following specific objectives of the conference: (a) to create an awareness of the role communication plays in the dietetic profession; (b) to acquire a basic understanding of the communication process; (c) to apply the basic principles of communication to the dietitian's specific situation; (d) to recognize barriers to effective communication; and (e) to help the dietitian to evaluate the effectiveness of her own communication skills. The program included these presentations by members of the Michigan State University staff:

"Removing Barriers to Communication"—Sheldon Cherney, Ph.D., Continuing Education Service

"Using the Case Study Method"—Leo Martin, Head of Area of Radio, Television, and Film

"Are You Listening?"—Conrad Posz, Ed.D., Communication Skills Department and Industrial Relations Center

"What Is Communication?"—Russell Jenkins, Ed.D., Communication Skills Department and Continuing Education Service

"How to Build Better Habits of Communication" — Sheldon Cherney, Ph.D.

"You Are What You Read"—Mary E. Holtman, National Project in Agricultural Communication (NPAC)

Edith Jones, A.D.A. representative, brought the broad picture of A.D.A. into focus for Michigan members in her address, "The A.D.A. in Review."

This unique meeting evolved out of

EMDEE* MARGARINE

a delicious table spread

a versatile kitchen shortening

its high corn oil content will not elevate blood cholesterol levels

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Easiest to learn . . . most natural to operate
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Mercury Dietary System

The simple, natural, efficient system that assures the specified menu for every patient. Can be operated by any employee . . . frees nurses for full-time nursing duties . . . gives dietitian complete control over makeup of trays. Serves food accurately — hot, palatable, FAST! MERCURY CONTROL results in less waste . . tremendous saving in food requirements.

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- Fastest to load and unload (3 minutes).
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- Most sanitary on the market; everything inside closed cabinets; slides easily removable for washing in dishwasher.
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A.D.A. participation in the NPAC Communication Planning Workshop held at Gull Lake, Michigan, last fall.

The Community Nutrition Section of the Michigan Dietetic Association has been overwhelmed with requests for its new leaflet "Geriatric Jottings." Newspaper releases have resulted in over seven hundred requests by individuals for the leaflet which offers menu ideas and recipes for low-cost meals especially suited to the nutritional needs of older persons. In addition, local associations have mailings completed to over three hundred nursing homes in the state.

Missouri Dietetic Association. On April 18, the Missouri Dietetic Association met in Jefferson City. The program included the following papers:

"Microorganisms—Friend or Foe?"—Frank B. Engley, Jr., Ph.D., Department of Microbiology, School of Medicine, University of Missouri

"Missouri's Aging Population in Institutions"—H. M. Hardwick, M.D., Missouri Division of Health

"Equipment Planning and Layout"—Justin Canfield, Southern Equipment Company

"Employee Training" — Robert C. Manhart, Ph.D., Professor of Business and Public Administration, University of Missouri

C. Frances MacKinnon, University of North Carolina, attended the meeting as A.D.A. representative.

Nebraska Dietetic Association. April 11 and 12, the Nebraska Dietetic Association met jointly with the Nebraska Home Economics Association in Omaha for a convention with the theme, "What's in the Future for Us?" The program included:

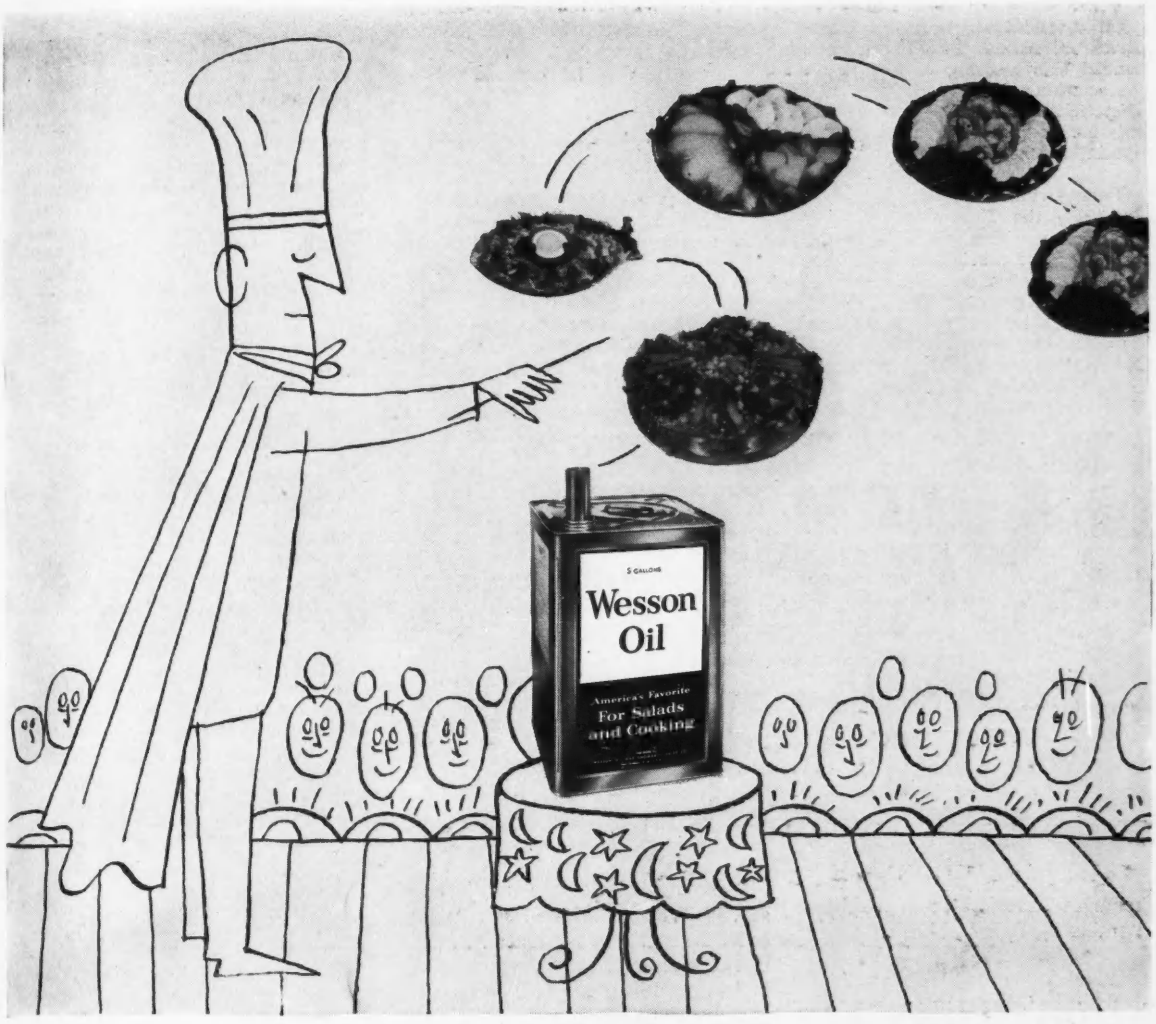
"The Right Start for the Future"—Dr. Willa Vaughn Tinsley, Dean, School of Home Economics, Texas Technological College, Lubbock

"What's in the Future in Education for Youth?"—Dr. Helen LeBaron, Dean, School of Home Economics, Iowa State College, Ames

"National Security in the Next Fifty Years" — Brig. Gen. James B. Knapp, Strategic Air Command, Offut Air Force Base, Omaha.

The Nebraska Dietetic Association has this year held five workshops or "cooks' training schools," one in each of five districts designated by the Nebraska Hospital Association. The Dietetic Association is also cooperating with the Hospital Association in preparing monthly menus for hospitals without dietitians. The Nebraska Dietetic Association is, in addition, revising the *Nebraska Diet Manual*, now in use in most Nebraska hospitals and sold through the Nebraska Hospital Association.

North Dakota Dietetic Association. Fargo was the scene of the spring meeting of the North Dakota Dietetic Association held in conjunction with



You can get $700 worth of salads out of every 5-gallon can of Wesson Oil

With oil-cost-per-salad that low, why risk using a so-called "just as good" brand? It couldn't possibly equal delicate Wesson Oil—as light and fine as an oil can be.

How to cut salad costs sensibly

Don't use a cheaper oil that coarsens the flavor of your salads. *Do* use delicate Wesson Oil . . . and carefully watch the amount of dressing used per salad.

Just enough dressing makes salads taste better. And salads made with Wesson Oil dressings taste the best of all.

Rainbow Salad

Approximate yield: 32 one-cup servings

Prepare 1 quart each: shredded carrots, cooked peas, sliced onions, shredded cabbage, chopped green pepper, sliced celery, cubed American cheese and sliced cucumber.

On individual salad plates covered with lettuce cups, arrange each item in strips or mounds. Garnish with tomato wedges. Serve with basic dressing shown on 5-gallon can of Wesson Oil. About 285 calories. For Slimming Salads of this size we recommend 3 tablespoons of dressing per serving.

Vegetable Oil is no sideline with us . . .
that's why Wesson is America's largest selling brand!

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Makers of Heavy-Duty MFB . . . Keap . . . Quik-Blend

the meeting of the North Dakota Hospital Association. Winifred Howard Erickson, A.D.A. Past-President, attended this meeting as the national Association's representative. The Dietetic Association held an all-morning business meeting followed by a special luncheon.

Pennsylvania Dietetic Association. In 1956, the Education Section of the Pennsylvania Dietetic Association prepared a set of slides, "This Is a Workshop." These slides have received wide use, not only in the state but nationally. Last year, the Women's Auxiliary of the American Medical Association obtained permission to have the slides adapted for use in that organization. Their use has now been reported by their National Safety Chairman, Mrs. John W. Wagner, who says: "We have had fifty sets made. We sent one set to each safety chairman to go with slides on traffic safety. They are being used this year and we hope they will continue to be shown another year."

Tennessee Dietetic Association. On April 24 and 25, the Tennessee Dietetic Association met in Memphis. Eighty-four dietitians from Tennessee and neighboring states attended. The program included:

"What We Still Do Not Know about Nutrition"—Dr. John B. Youmans, Dean, School of Medicine, Vanderbilt University, Nashville

"As Management Sees You"—M. F. McNulty, Jr., Chief Administrator, University Hospital and Hillman Clinics, Birmingham, Alabama

"The Contribution of the Dietitian to the Community"—a panel discussion.

Geraldine Piper, A.D.A. Speaker of the House of Delegates, attended as the national Association's representative.

Utah Dietetic Association. The program of the April meeting of the Utah Dietetic Association in Salt Lake City featured an informative program on "Food Misinformation" presented by the 1958 dietetic interns at Latter Day Saints Hospital.

Let CREAM OF RICE help solve your modified diet problems

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EXTRA NOURISHMENT

Cream of Rice is rich in iron plus Vitamins B_1, B_2, and Niacin.

It gives quick energy fast, too. Actually within a few minutes after eating. Cream of Rice is easy to digest. Many leading pediatricians advise it.

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Now Cream of Rice cooks in just 30 seconds. That's 10 times faster! What could be easier . . . quicker . . . less work! It's a meal in half a minute. A delicious, nourishing, easy-to-digest cereal young and old enjoy.

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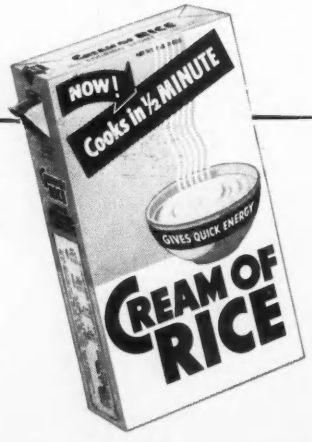
Cream of Rice has a delicate flavor. Different, delicious. This is a creamy rice treat that really tastes good.



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Association Activities

Executive Board Meeting. The A.D.A. Executive Board met in Chicago, June 29 to July 2. The Finance Committee held its meeting on June 28.

A.D.A. Committees. The *Library Committee*, with Nancylee Ray as Chairman, met May 27 in the Headquarters office to review and evaluate materials received for the Lulu G. Graves Memorial Library. Copies of new diet manuals and dietary department floor plans would be appreciated in order to keep this portion of the Library up to date.

The *Committee to Study Broadening of A.D.A. Membership* met on June 19 and 20 in Chicago. Information submitted by colleges and universities in a recent survey was reviewed. Dr. Helen Hunscher is Chairman of this Committee.

Dietary Institutes. The American Hospital Association's recent Dietary Institute for Dietary, Housekeeping, and Nursing Departments—the first of its kind—held in Chicago, April 7 to 11, proved most successful. Heads of all three departments came from many hospitals to discuss situations and share ideas of mutual interest. The American Dietetic Association cooperates with the American Hospital Association in these institutes as a part of our continuing education program.

Another A.H.A. Dietary Administration Institute, with A.D.A. cooperating, was held in New York City, June 2 to 6. The subject matter was directed toward hospital dietary department administration and interdepartmental relationships. Hospital administrators were encouraged to attend.

A.D.A. is cooperating in another A.H.A. Dietary Administration Institute to be held in Kansas City, Missouri, September 8 to 12. Subject matter will concern specific areas of dietary department administration and patient management. Hospital dietitians should find the week stimulat-

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Sometime ago we remodeled and in selecting our new china, silver, and glassware service, we chose Libbey crested ware for its distinctive styling and utility of service. We have had many favorable comments from our guests about the Libbey crested beverage and highball tumblers used in both the dining rooms and bar.

We are very pleased with the economy that Libbey Glassware affords, particularly its strength under hard use at peak periods.

Sincerely,
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So says Fred Boyd, whose recently remodeled Hi Life Restaurant in Fresno, California, uses Libbey Safedge Glassware throughout dining and bar service. He helps to maintain his reputation for "food at its best" by providing service at its best.

Libbey Safedge Glassware offers exceptionally attractive glassware in a wide variety of patterns and sizes, combined with amazing durability. Every glass is backed by the famous Libbey guarantee: "A new glass if the rim of a Libbey 'Safedge' glass ever chips," for further assurance of economy.

For every need there is a "just-right" Libbey glass in matching stemware and tumblers, to unify bar and dining service. Every glass can be crested with your individual design for added distinction.

Do as Fred Boyd did . . . look to Libbey for the finest in beverage service. See your Libbey Supply Dealer or write to Libbey Glass, Division of Owens-Illinois, Toledo 1, Ohio.

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EATING IS FUN—
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Older People, Too

Designed to Aid Proprietors of Small Nursing Homes and Residences. Also Adaptable to Home Kitchens

This attractive booklet is a guide to better food and food service in the small institution. Based on normal nutritional requirements for adults, the menu patterns, sample suppers, and pointers on meal planning have their place in any household. Practical ideas for making the work of the manager easier and pleasanter include a weekly marketing guide, hints for economy in buying and storage, and suggestions for serving.

This is a project of the Diet Therapy Section of The American Dietetic Association.

Single copy 50¢

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ing and challenging. Since an advanced reservation is necessary, those interested should send their applications to the A.H.A. Institute office, 18 East Division Street, Chicago 10.

Regional N.L.N. Curriculum Conference. Marjorie E. Newton, Instructor in Nursing, University of California, San Francisco, represented A.D.A. at the last of a series of eleven curriculum conferences sponsored by the National League for Nursing, Inc.—this one held in San Francisco, April 15 to 17.

The scope and general emphasis of these conferences have been reported previously by our representatives attending. The effectiveness and interest of these working groups have provided much stimulus to the exchange of ideas.

Miss Newton tells us that a large section of the program was devoted to the contributions of social science to nursing education—also applicable in our field.

Commission on Health Careers. A. June Bricker, as our official representative attended the luncheon of the Commission on Health Careers of the National Health Council, April 22, in New York City. In recognition of Medical Education Week, Dr. Leonard A. Scheele, Chairman of the Commission, pointed out that the meeting was an effort "to center attention on medical service and schools." He told of the shortage of medical teachers, accompanied by a decrease in the number of applicants in medical institutions. He feels these conditions are due in part to high cost and length of medical training.

Dr. Howard A Rusk, Director, Institute of Physical Medicine and Rehabilitation, New York University-Bellevue Medical Center, discussed "Health Manpower, An Essential Investment." Dr. Rusk attributed the shortage of health manpower in part to "increasing competition for potential health personnel by the unprecedented emphasis on careers in physical science and military technology."

A citation to The National Foundation for Infantile Paralysis was given by John McDowell, President, National Association of Social Workers, and was accepted by Basil O'Connor, President of Foundation.

Association Representatives. The Tenth Anniversary of the *World Health Organization* was celebrated in Minneapolis, May 26 to June 14. A.D.A., as a member of the National Citizens Committee of WHO, was represented by Winifred H. Erickson. A report will follow. Marguerite J. Queneau is our current representative on the Committee.

The Canadian Dietetic Association held its 23rd Annual Convention June 9 to 11, in Niagara Falls, Ontario. Dr. Charlotte Young was our official representative and also participated as a speaker on the program. Other A.D.A. members included on this program were Dr. Ruth Leverton and Alberta Macfarlane.

Obituaries

Janette Kelley. Notification has been received of the death on May 24 of Janette Kelley in Minneapolis. Prior to her retirement in February, Miss Kelley had served since 1946 as Director of Home Service, General Mills. In this capacity she directed the development of Betty Crocker recipes and the preparation of the Betty Crocker cook books. From 1925 to 1926, she was Food Editor of *Delineator* magazine, after which she became Director of the Test Kitchen for General Foods Corporation. From 1931 until 1944, she directed the Home Service Department of Lever Brothers.

Blanche King. Word has been received in the A.D.A. headquarters office of the death in January of Blanche King of Decatur, Georgia. Miss King, who has been a member of the Association since 1937, was for many years on the staff of Piedmont Hospital, Atlanta.

Erline Churchill Peterson. The A.D.A. office has been notifed of the death of Erline Churchill Peterson on February 14 at Letterman Army Hospital, San Francisco. Mrs. Peterson, at the time of her death, was employed by the Quartermaster Corps of the Army, and prepared master menus for the Armed Forces in the Far East. She had been an A.D.A. member since 1947.

News of Products and Services

A new, instant ice-tea called "Instea," has been introduced by *Continental Coffee Company*. The product is packaged in attractive blue and white, ¾-oz. packets, 50 to a case. Each packet is equivalent to 1 oz. regular tea.

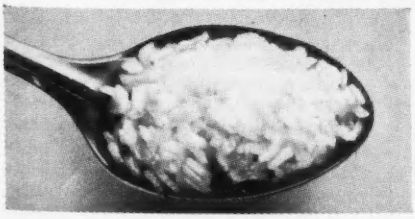
A new enclosed mobile aluminum bussing cart is announced by *Crescent Metal Products, Inc.* Known as Model 113-186, the new cart is 50½ in. by 21 in. by 30 in., and is made with three solid sides. It is mobile, on 5 in. Neoprene tired casters. The cart will carry six trays 18 by 26 in. or 12 by 18 in. in size on angle shelves spaced 7 in. on center. Dish boxes or tote pans may also be carried. The new cart features removable inside angle racks. Inside shelves can be removed by simply twisting the four quick-fasteners holding them to the solid sides. This feature facilitates cleaning.

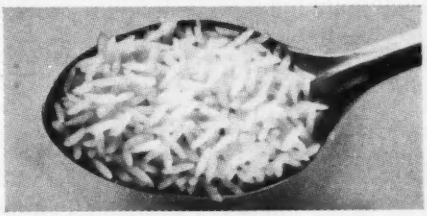
A new grease-resistant mesh matting, available for the first time in white, has just been developed by *American Mat Corporation*. Designed

UNCLE BEN'S RICE
*Gives You UP TO 23% More Servings Per Pound!**

*As Proved By Independent Laboratory Tests.

THESE PICTURES TELL YOU WHY...





ORDINARY RICE gives fewer servings per pound because it tends to cook up denser and less fluffy, with grains sticking together.

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For FREE quantity recipe cards, write: Uncle Ben's Rice, P. O. Box 1752, Houston 1, Texas.

to prevent breakage, promote sanitation, and reduce sound in hotels, hospitals, and restaurants, the product is being marketed under the trade name of "Neotex." It is an open mesh matting constructed of an expanded fiber core thickly coated with pure neoprene. It is available in two diamond shaped patterns—a coarse pattern with approximately ⅜-in. openings and 3/16 in. in thickness, and a fine pattern with openings and thickness two-thirds those of the coarse pattern. It comes in 26-in. width, and in lengths up to 50 ft. Scissors can be used to cut it.

Diamond Crystal Salt Co. has introduced a new, Quik-Fill, plastic salt dispenser for efficient refilling of salt shakers. It operates in the same fashion as cream-dispensers currently in wide use in restauarants and institutions. With the use of this dispenser, eighteen 2-oz. shakers can be filled from one carton of salt at a saving of more than 5 seconds per shaker over conventional filling methods. A 26-oz. round carton of Diamond Crystal table salt fits into the hopper of the Quik-Fill and is cut by two knife-like edges of plastic which slit the bottom of the container. Shakers are held under a spigot just below this opening. By pushing them up, the salt is made to flow. An automatic shut-off valve stops the flow of salt when pressure is released. The dispenser is being offered as a premium item to institutional salt buyers and will be given free with each fifteen-case purchase of Diamond Crystal salt.

Diamond Crystal Salt Co. has entered the portion-control market with packets for institutional use of ketchup, mustard, Parmesan cheese, apple and grape jelly. Also offered are three "service kits," all Cellophane wrapped, which have been designed for locations where food must be carried out. One kit contains a napkin, wooden stirrer, and sugar packet. Another offers salt, pepper, and sugar packets, while the third contains a complete setting of salt, pepper, and sugar packets, plus napkin and plastic knife, fork, and spoon.

Four seasonal sets of quantity recipes are now being issued each year by the *United Fresh Fruit and Vegetable Association.* Each recipe is scaled for 50 portions. Included in the spring packet were the following recipes: chef's salad bowl, empire salad, fresh tomato surprise salad, fresh vegetable Macedoine salad, molded fresh vegetable salad, basic French dressing, sour cream dressing, and vinaigrette dressing.

"Let's Eat Outdoors" is the title of a new cook book for picnics, barbecues, patio parties, and camping which will be attached during the summer to *General Mills* Bisquick boxes. This twenty-four-page guide to outdoor eating is printed in four colors and contains eighty-six individual recipes and menu suggestions. Preparation of this promotion booklet has been jointly sponsored by nine oranizations: *American Dairy Association, Coleman Stoves, Corn Products Refining Company, Dixie Cup Division of American Can Company, General Mills, Hormel, McCormick & Co., Nestle,* and *Stokley-VanCamp.*

Pillsbury Mills, Inc., this summer is proud of the fact that baked goods made from its mixes will be served to people from all over the world in the American pavilion at the Brussels World Fair. Such Pillsbury products as flapjacks, corn muffins, and cakes of various types will be served to Fair visitors.

Campbell Soup Company has added a 9½-oz. frozen sliced turkey dinner to its Swanson line. Slices of turkey, stuffing, gravy, and mashed potatoes are sealed in an aluminum dish, requiring about 25 min. oven heating to serve.

A new folder released by *Campbell* lists all products now available under Campbell and other company brand names in consumer and institutional sizes with net contents, approximate cup measure, and number of servings. New products added in 1957 include four Campbell soups, Swanson frozen dessert pies, and four TV Brand frozen prepared dinners.

Instant Potato, being distributed by *H. J. Heinz Company,* now makes it possible to serve mashed potatoes

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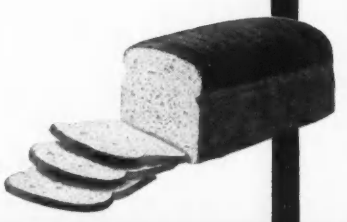
COMPLETE PROTEIN FROM GRAINS

V-10 Protein is an exceedingly fine-tasting complete protein supplement.** Because of its compatibility with other baking ingredients, a full 19 pounds of V-10 Protein is combined with every 100 pounds of enriched white flour used to bake V-10 Protein Bread. The result is a fine-flavored bread that adds a new source of quality protein to everyday diets.

V-10 Protein is available in V-10 Protein Bread, now being baked by many bakers. This delicious bread gives every meal planner additional ways to combine good eating with quality protein intake.

**Prier, R. F., and Derse, P. H.: Nutritive value of a vegetable protein mixture. *J. Am. Dietet. An.* 33:1034, 1957

Reprints available on request.



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Vitamin K . . . found mainly in plant fats and oils but also in animal fats . . . is necessary for the normal clotting of blood.

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The nutritional statements made in this advertisement have been reviewed by the Council on Foods and Nutrition of the American Medical Association and found consistent with current authoritative medical opinion.

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in less than 3 min. All that is necessary to produce mashed potatoes is: measure the required amount of milk and water into a saucepan, add salt, bring the liquid to a boil, then remove it from the heat, and while whipping the liquid with a fork or mixer, slowly add the dehydrated potato. As soon as the potatoes have absorbed the liquid, add butter, and whip until white and creamy. Idaho Burbank Russet potatoes are used for the Heinz Instant Potato. Storage space, as well as time, will be saved by using this product. One case is equivalent to 240 lb. raw potato. Furthermore, Instant Potato can be stored as a stable food rather than a perishable one. Cost of serving a No. 10 ice cream disher (3.2 oz.) of mashed potatoes made from Instant Potato is said to be less than 2 cents.

Ac'cent-International has introduced to the institutional trade "Sauce-Quik," a complete roux plus milk, to which only water is added to produce a smooth cream sauce. With this product, the effort and work formerly needed to make white sauce will be eliminated. It is claimed to be failure-proof. With Sauce-Quik, water, sauce pot, whip, and 5 min. of boiling, a perfect white sauce may be produced. Innumerable sauce variations may also be made from it, including *chaud froid*.

Also from *Ac'cent-International* comes a new booklet, "Some Basic Facts about Ac'cent for the Dietitian." Illustrations show how Ac'cent may be used at "every station in every type of kitchen," while copy covers what monosodium glutamate is, its uses in prescribed diets, infants' and children's foods, food for the elderly, and so on.

"How to Care for Your Floors" is an eight-page instructional booklet on floor care and maintenance prepared by *The DuBois Co., Inc.* It presents concise, factual information on cleaning and waxing all types of floors: asphalt tile, rubber, vinyl, linoleum, terrazzo, and other types. Line drawings make the booklet serviceable as a "primer" for beginning maintenance personnel. The contents include directions for: wet mopping, damp mopping, dry mopping, machine scrubbing, and waxing or polishing. Six important "don'ts" are listed, as well as a number of hints on floor care.

The DuBois Co., Inc., is marketing a liquid cleaner called "Prime," which strips old wax from floors and cleans painted surfaces, metal, plastic, fabric, leather, and rubber and nylon. Free of fire hazard, with no toxic properties, it is also non-injurious to skin and has no unpleasant odor. Prime is concentrated and can be diluted with water. It is packaged for institutional and industrial use in 55-, 30-, and 15-gal. drums.

Cereal Institute, Inc., has issued a folder, "A quick and lasting energy breakfast that is low in fat and low in cholesterol!" Nutritive values of a proposed low-fat, low-cholesterol breakfast are presented in tabular form. Two additional tables give proximate values for "high-fat-slow-energy foods" and "low-fat-quick-energy foods."

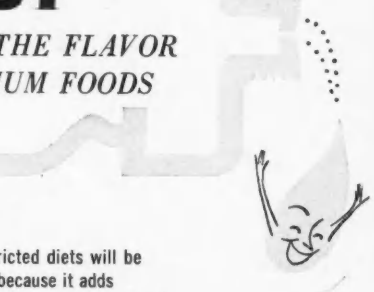
"Analysis of Coffee Grinds" is the title of Publication No. 32 of *The Coffee Brewing Institute, Inc.* In it, Ernest E. Lockhart, Scientific Director, describes in detail the techniques and equipment used in analyses which are the basis for the standard grind classifications recommended to the industry over a decade ago.

Cleveland Range Company is offering a new booklet titled, "Practical Steaming with Steam-Chef," which was compiled by the Chef's and Steward's Food and Equipment Menu. It combines a basic guide for steam cooking with facts about steam-cooked foods and their advantages. The booklet contains suggestions for preparing frankfurters and sauerkraut, turkey, steamed stuffed peppers, dumplings, rice plum pudding, and vegetables.

A composition 12 by 18 by 1¼ in. cutting board, called "Cut-Rite," is being distributed by *Edward Don & Company*. It is made of a plastic-rubber that won't splinter, nick, chip, warp, or absorb odors or juices. The board weighs 6¼ lb., cleans easily with a damp cloth, resists staining, and never needs scraping. It has been approved by the Meat Inspection Branch of the U.S.D.A.

DIAZEST

PUTS THE FLAVOR IN LOW SODIUM FOODS



People who are on sodium-restricted diets will be delighted with Milani's Diazest because it adds appetizing flavor and real zest to low sodium foods. Diazest is a **liquid** and blends easily with all foods. One serving of Diazest contains **only 4/10 milligram of sodium.** Sodium-restricted dieters may use Diazest regularly, without affecting daily allowances.

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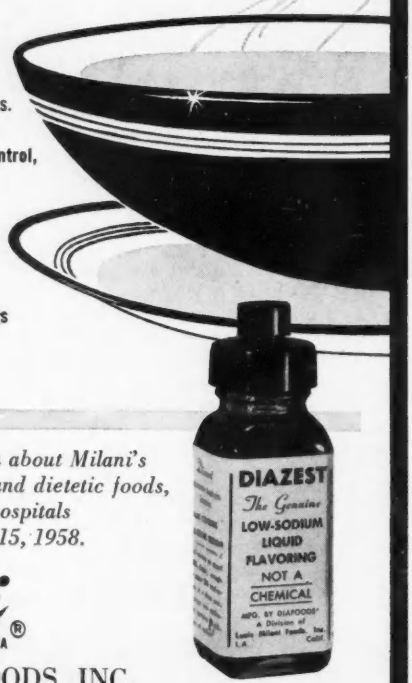

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